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ECONOMIC AFFAIRS

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11 June 1985

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ECONOMIC POLICY, ORGANIZATION AND MANAGEMENT

UKRAINIAN ACADEMICIAN EXAMINES ECONOMIC MANAGEMENT TRENDS

Kiev EKONOMIKA SOVETSKOY UKRAINY in Russian No 1, Jan 85 pp 17-25

[Article by Academician I. Lukinov, "The Essence and Directions of Improving the Methods of Economic Management"*]

[Text] Regardless of the theory of the economic mechanism, I wish to take note in advance that independently of the interpretation of its essence, I do not share the extreme views which interpret it too broadly, or too narrowly and oversimplifiedly. Hence, the differences in the demands upon its further improvement: with the former there is a boundless globalism and aimlessness, with the latter a review of negligible parts which do not solve the problem.

In its scientific interpretation the economic mechanism represents an aggregate of organically interconnected economic methods with the help of which managerial functions are carried out. This is a system of planning in its optimal combination of centralization with low-level elements, a system of distribution relations, price and financial and credit regulation, and of the realization of structural and investment policy and cost accounting stimulation, and a system of evaluative criteria and indicators of the final results of social production, the levers for influence and changes in it, and others. It is in the economic mechanism that the essential aspects of socialist production relations manifest themselves in their complex hierarchy of economic interests. The chief and definitive one of them--the interests of all of the people--is achieved through state economic policy which is based on the Leninist principle of democratic centralism, on a combination of the interests of all levels, and on the material and moral interest of the labor collectives and of each individual worker in ensuring the interests of all of the people.

The methodological interpretations of the economic mechanism which one sometimes encounters as a kind of superficial phenomenon which transcends the framework of the political economy are scarcely correct. The objective economic laws of socialism are realized in the action of their economic mechanism, in the conscious management of the reproduction process, and in the enormous diversity of structural combinations on the macro and micro economic

*This is an abbreviated text of a report to the republic scientific-practical conference "Problems of Improving the Economic Mechanism" of 25 October 1984 in Kiev.

levels. The continuous changes, on the one hand, and the needs for effective demand on the other—volumes, structure, and quality of resource potential, that is, economic potentials (including a search for the effectiveness of interchangeable resources) require flexible methods of planned management and cost accounting stimulation and the formation of qualitatively new economic structures. Given the conditions of the enormous dimensions and dynamism of the entire economy the mobility of these two components of the basis and its balance require a search for and introduction of new and more effective methods of management in place of the obsolete ones. A wide-scale economic experiment has been set up in this direction. We are speaking about the development of a more effective system of socialist economic management which accords with the model of developed socialism.

In his speech at the October (1984) Plenum of the Central Committee of the CPSU K. U. Chernenko emphasized that in the plans for the 12th Five-Year Plan and for the subsequent period it will be necessary to "embody and concretize the party's economic strategy until the end of the present century" and necessary to "persistently continue in all branches the line aimed at strengthening the regimen of the economy and of improving management and the economic mechanism."

Past experience has shown that attempts to solve complex economic problems by purely administrative methods have not justified themselves. Those economic plans, ordinances and regulations, and "threatening" orders which are not reinforced by economic and organizational measures and actions and by precise economic calculations remain, as a rule, unrealized. They engender excessive information and oversaturation and tension, without influencing the real course of economic development.

Therefore, in developing a new economic mechanism especial importance is attributed to a skillful combination and unity of economic and administrative methods of managerial work. A consistent policy is carried out aimed at the elimination of the excessive cumbersomeness of the administrative and managerial apparatus, red tape and bureaucratism, and at putting the functions of all of the elements of management into good order. One sometimes encounters attempts by "higher elements" proceeding under the flag of "concrete leadership" to replace the work of "lower elements" and to create only the external experience of managerial activity. In fact, this is a withdrawal from the fulfillment of their own functions—from the solution of the more complex and difficult problems of the "upper horizon," which, in addition, is accompanied by the lowering of the responsibility for the work of enterprise and association leaders, a depersonalization of their work, and a paralysis of their initiative.

A strengthening of the economic methods of management is incompatible with the mixture of functions and sometimes collisions arise when economic decisions are adopted by certain agencies, while the responsibility for them is placed upon others. The functioning of an economic mechanism, even the most perfected kind, is inconceivable without a rational structure of management. It has to be formed in the near future with the simultaneous introduction of a

genuine economic responsibility by each element for the decisions made and realized by them.

The human factor, as is known, acts in any economic system as the decisive motive force, which puts the total production potential into action, and which carries over past labor and creates new value and the final result. With the present economic potential of the USSR, when its national wealth (excluding land, timber, minerals, and water resources) reaches almost 3.5 trillion rubles, effective economic management, excluding both scarcity and the production of products not needed by the consumer, gives especial importance to scientific forecasting and to the accurate planned calculation of the volumes and structure of needs, and also of the resource possibilities of covering them.

Today it is no longer possible to satisfy oneself with the general planning balance of the two subdivisions of social production and groups of industrial branches "A" and "B" in the gross volumes of the production of their output. It is necessary to balance (in quantitative and qualitative terms) their internal structures, and to coordinate commodity output with actually changing consumer demand.

In and of itself the reorientation of the evaluation of economic activity and of the increase in the cost accounting funds of material stimulation which is being carried out in the economic experiment in accordance with the criterion of fulfilling the orders of consumers (in assortment) is aimed at the achievement not only of local, but also of general national economic balance. The introduction of the kind of "dictate" by the consumer with regard to the producer and the full and punctual satisfaction of the former's orders in accordance with contract obligations is one of the considerably important conditions and guarantees for overcoming deficits in the future and for overcoming so-called "non-salable" products at the warehouse. For, if every producer were to strictly fulfill the justified orders of the consumer, then the entire national economy would function on a balanced basis. The struggle against the squandering of resources and their reproduction in widening dimensions yields palpable fruit in those places where a feeling for the socialist boss is highly developed, where funds are rapidly renewed, where new technologies of a resource saving type with a closed cycle are introduced and mastered, where there is a minimum of waste and losses, and where the economy is oriented toward the production only of that kind of output which is used to meet the demand of the consumer and is competitive on the world market and, in addition, has a minimum of costs per unit of obtained useful effect.

Production has to function under stable economic conditions of cost accounting activity, without permitting both unwarranted and unplanned withdrawals of funds and gratis handouts with the planned increase of its contribution to national income and to the State Budget. Every labor collective has the task not only of compensating with final results for the production costs of its work, but also of obtaining net income in amounts which will ensure the full and punctual payment to the budget, and the repayment of credit indebtedness,

and the creation of cost accounting stimulation and development funds in planning the growth rates and qualitative improvement of production.

All of this lends itself to precise planning calculation and management. In planning wholesale and procurement prices for the production program it is necessary, on the one hand, to proceed from economically substantiated normatives of expenditures and profits and from the optimization of the actions of price and financial credit levers, and, on the other, to clearly manage the movement of total expenditures (capital investments and current expenditures) at each enterprise. Nor is it possible to reduce such highly important resultative indicators as capital intensity, cost and production profitability to their passive fixation in the annual, or at best, in the quarterly reporting when matters can no longer be corrected. They have to be subjected to constant day-by-day analysis, and reserves for reducing the cost of production must also be sought and used.

Insufficient attention to the effectiveness of the use of resources in the system of the management of associations and enterprises results not only in an extremely negative tendency toward the local, but also in a general rise in the cost of production on a national economic scale. This, of course, is fraught with price changes in a rising direction.

Any enterprise—regardless of its size and structure—behaves as a system, as a kind of living organism with entrance and exit canals through which there occurs a continuous circulation of material and monetary costs and their compensation. With contemporary technical possibilities this lends itself to precise mathematical economic modeling. The management of "costs—emission" and the speed of circulation are the chief and decisive function of leadership.

While it is at the same time the consumer of basic resources (raw materials, energy, materials, labor, and many others), and the producer and supplier of finished output or services, every labor collective, all of its managerial elements, and all of its specialists and directors bear an immediate economic responsibility to society for the final results of their work—to produce more, more cheaply, and better, to satisfy the consumer's needs punctually and to the fullest extent, to manage in a highly profitable manner, and to make an ever greater contribution to the economic might of the state.

Such is the basic principle of socialist economic management as developed by V. I. Lenin. The present economic policy of the CPSU and the Soviet state is based on this principle. Moreover, a course aimed at scientific and technological progress and at the intensification of social production is decisive. It is especially important for the conditions of our republic where the possibilities for extensive growth are very limited. The action of an aggregate of factors, including the limited nature of land, water, labor, and energy resources has advanced the intensive factors of economic growth to the forefront (and, perhaps, the only possible place today) among the prospects for a further acceleration of progress.

This source is inexhaustible, just as the very process of scientific and technical knowledge and discoveries is inexhaustible. The possibilities of the interchange and economic expenditure of resources, the rationalization of their structure, and the technological and organizational renewal of production are infinite. In the lead is always the one who makes use of these possibilities more rapidly, and who curtails to the utmost the cycle from the birth of an idea to its mass practical use. All of these measures which are aimed at the cost accounting stimulation of scientific and technological progress are the pivot of the contemporary economic mechanism of management.

Thanks to the activization of all economic policy toward an acceleration of scientific and technological progress, and the setting up of the necessary order and discipline in production, during the last four years of the 11th Five-Year Plan it has been possible in the republic not only to extinguish a tendency toward a lowering of economic growth rates, but also to double them compared to 1980 with a simultaneous economizing of the labor of 2.4 million workers. For the first time the entire growth of the gross product and of national income was achieved without an increase in the number of workers in material production. The material intensiveness of the social product was reduced, which brought 2.6 billion rubles of additional income. But the real possibilities for an increase in the efficiency of social production, as is shown by research, are considerably greater. An average annual increase (3.8 percent) of the gross product has been achieved today, and national income can be increased. Especially since during the last three years, as a result of certain reasons, there was almost no increase in gross agricultural output, which held back the growth of production in the branch and created serious difficulties for the fulfillment of the Food Program.

The preliminary results of an economic experiment on 254 associations and enterprises of the Ministry of Food Industry Ukrainian SSR, and also on 28 objects of the Ministry of Heavy Machine Building and 62 of the Ministry of Electrical Technical Industry which are located on the territory of the republic show positive changes in the resultative indicators of economic management. It is characteristic that rather good work is done by factors set in the experiment which stimulate the fulfillment of plans and contract commitments for output deliveries in a products list, and also the fulfillment of a production program with a smaller number of workers.

At the same time the stimulation of scientific and technological progress and an acceleration of the technical renewal of production on the basis of the cost accounting funds of its development remain "bottlenecks": they are still negligible in their sizes, with the result that the possibility of acquiring qualitatively new equipment on their basis is limited. There is not as yet the necessary mutual coordination and interest between the suppliers and consumers of output, with the introduction of more effective economic sanctions for contract violations. These questions require additional work with the further conduct of the economic experiment and with its dissemination to other branches of the economy. On the basis of an analysis which it has conducted, the Institute of Economics of the Academy of Sciences Ukrainian SSR is preparing the appropriate proposals.

There has to be a substantial expansion of the range of economic maneuvering "from below" under the conditions of purposeful planned regulation "from above." The mass and inexpensiveness of goods and services predetermines the saturation of the capacity of the socialist market and its subsequent expansion on a stable and even decreasing price base. Production and the market are in a single planning orbit, with an interaction in limited inter-connections.

Of course, there are no grounds for an artificial opposition between categories which are united according to social direction yet different in their economic contents, such as plan and market, plan and price and planning production and sales, although under socialism the economic interests of the producer and of the supplier are by no means the same, but internally contradictory. As the supplier of output the producer is interested in selling it more expensively while the buyer wishes to acquire it less expensively. Hence the extremely high activeness and sensitivity of executives and specialists, both as low level economic elements and as upper echelons of management (ministries and departments) toward the planned establishment of prices by the State Committee on Prices and its local agencies. To a considerable extent under the influence of this, and with the renewal of the action of objective price increasing factors, a change in wholesale and procurement prices occurs primarily in the direction of their increase. With a stable policy of the party and state aimed at the stabilization and even reduction of state retail prices this leads to an inevitable expansion of the sphere of budget subsidies which take on impressive amounts, deforming the currency and financial system. We conducted a detailed study of the changes in expenditures, costs, prices, and production profitability for an entire circle--beginning with the extracting branches and ending with the production of consumer goods for the USSR and Ukrainian SSR. The structural changes in expenditures and costs during the past 20-year period took form, unfortunately, not in the best direction. Hence, the correlation between the price and financial and credit methods of management are not optimal. In addition it is entirely obvious that without a stabilization and decrease in the cost of output and without an increase in the return on resources the process of the increasing cost of production will be impossible to overcome.

The necessity has arisen to eliminate the elements of leveling which arose during the rounds of the socialist principle of distribution according to labor--beginning with exaggerated financial withdrawals from highly profitable productions and non-reimbursable subsidies to loss-bearing ones. For it is here that we have the beginning of the undermining of the economic interest of well-operating labor collectives which in the future increase the effectiveness of their production: they know that no matter how much they increase their income, their so-called "surpluses," all of this will be taken away and poorly operating enterprises have already become accustomed to the fact that the state will always cover their losses and not allow them to go bankrupt. With a centralized procedure a guaranteed level of wages with a low profitability and loss-bearing economic management is also practically not

decreased. Nor is there a decrease here, as a rule, in the material goods from the social consumption funds.

Our proposals in this field amount to an optimization of the price and financial and credit mechanisms which does not allow the displacement of free financing with more effective price regulation. By means of a synchronous review of wholesale, procurement, and retail prices, the introduction of a more flexible system of their formation (including upper and lower limits for them), and the expansion of the rights of enterprises in price regulation would make it beneficial to curtail the swollen budget subsidies which are undermining the cost accounting principles of economic management and giving rise to parasitism which contradicts the fundamental principles of socialism.

Yield on resources and the satisfaction of the demand of consumers are the generalizing criteria for evaluating economic activity. The universal development on this basis of the cost accounting team contract, a movement to real cost accounting, and strict control by the ruble over the activities of enterprises, associations, and higher elements of economic management fully accord with Lenin's principles of socialist economic management and democratic centralism.

In ensuring the necessary concentration of investments and resources on the global direction of economic development, the Soviet state thereby solves the people's problems of top priority and importance, including the planned development and purposeful financing of such major programs as the Energy and Food Programs, strengthening the defense of the country, mastering the natural resources of the Northeast and East, a study of outer space and the world's oceans, the creation of a national economic infrastructure and others. All of this is carried out on the basis of centralized appropriations. Here, of course, the socialist system possesses indisputable advantages.

But, at the same time, as a study shows, the dissemination of the principle of centralization to economic measures, and especially to current expenditures which have to be reimbursed exclusively by the results of the work of each labor collective are economically not justified. A deep analysis in the various branches of the republic's industry and agriculture has established that the relationship between the cost of output and the wholesale prices for it, and total expenditures and receipts in groups of enterprises even with the same structures differ very substantially. The range between the extremes of the level of profitability of the production of groups of enterprises reaches two, three, and sometimes four to five magnitudes. The reason for such a phenomenon consists in the degree of technological and organizational perfection, the ability to manage economically, and also in differences in natural conditions. The latter is especially palpable in the branches of the extracting industry and in agriculture where differential rental incomes are formed.

The introduction into production of the new economic mechanism is accompanied by the overcoming of losses and low profitability in production. Depending upon each concrete situation in relation to the loss-bearing and low profit-

ability of enterprises it is necessary to take the appropriate measures—to strengthen their leadership, to carry out in them organizational and technological and structural reorganizations, to review the level of prices for their output, or to do everything taken together including drawing all of these into the effective operation of associations. It is also necessary to undertake more boldly the closing of certain productions which have exhausted themselves and are lacking in a future and which bring society losses, compensating the losses connected with this with an increase in the production of output at effectively functioning enterprises. In any case, around 12 percent of the republic's loss-bearing state enterprises and organizations will have to be turned into profitable ones. This problem is an extremely acute one in the coal industry where most of the mines are loss-bearing. Large appropriations are allocated to them from the State Budget as subsidies. Considerable subsidies go to cover the differences in the prices for certain food products. Meanwhile, their cost of production has a tendency to rise. It is scarcely possible to recognize economically warranted and state subsidies for a number of other spheres, including the infrastructure. They lead to the fact that the economic interests of certain enterprises are concentrated not on how much can be deposited in the budget but on how much can be taken from it.

There is also a substantial group of low profitability enterprises which from year to year cannot make ends meet. They should be brought up at least to the level of the planned profitability normative. According to our calculations, depending upon the specific nature of the branches and the productions, the normative cost accounting profitability of a production should fluctuate from 7 to 15 percent of the profits of fixed and circulating capital. In principle it is necessary to strive for an increase in general national economic profitability so that it is no lower than the social unified normative level, having in mind an increase in budget receipts through the canals of direct differentiated payments, and not price withdrawals.

A thorough expansion of the rights of labor collectives, and a strengthening of the democratic foundations of economic management are connected with a wide development of creative initiative, and the socialist enterprisingness and socialist competition of the workers. Their participation in all of the spheres of economic activity at the full level of cost accounting and their economic responsibility for the final result of social production—this is the pivotal basis of the new economic mechanism on the level of associations and enterprises which should have a wide range of economic maneuver and choice (including contract relations with suppliers and consumers), and a flexible reorientation of their production structure in accordance with changing consumer needs within the framework of general planning balance. Extensive scientific development work and discussions are being conducted in this direction, and constructive projects of directive solutions are being prepared.

We speak often and much about shortages and sometimes shamefacedly keep our silence about the production of a part of the output at the warehouse. But an emphasis on eliminating a shortage through a one-sided way—only by increasing

new capacities, without a deep structural reorganization of production, without excluding the expenditure of resources for the production of products unneeded by the consumer, and without price regulation--this, to put it frankly, is unrealistic. Only under the conditions of insufficiently perfected methods of planned management is it possible for the paradoxical situation of "overstocking" and commodity "hunger" to arise. There is probably nothing more wasteful and pernicious for the economy of the state than the production of products which are rejected by the consumer. Expended labor, raw materials, materials, energy, and others have been spent irretrievably, and the capacity of the market has been expanded by the amount of the payment of labor. This applies in equal measure to equipment which is not being installed on time, to unfinished construction, and to the so-called "period of the mastery of capacities" when in the absence of yield consumer demand grows. If one adds to this the multiple facts of an increase in the payment of labor without an increase in the effect obtained from it, the increase in non-labor income among thieves and speculators who make use, above all, of price imperfections and enrich themselves through the difference in the levels of planning and speculative prices for deficit goods and services, which becomes clear on the basis of the occurrence of an increase in consumer demand and a violation of its balance with supply.

All of this demands an overall, planned regulation in the system of the economic mechanism: on the one hand, ensuring the flexible maneuverability of resources, a more rapid increase in the production of deficit products and the removal from production of "non-salable" products, and, on the other, the stabilization of consumer capacity right up to the complete exclusion of an increase of the monetary mass in circulation which is not covered by goods and services. It is essential by means of a more flexible regulation of state retail prices to exclude the leakage of monetary resources from the state treasury and from the pockets of consumers.

With the help of the introduction of more effective stimulating and destimulating levers the new economic mechanism should contain a substantially accelerated process of the technical and technological renewal of production, and a strict balance between work places and the existence of labor power. Given its deficit it is completely senseless and impermissible to maintain a situation in which over a period of many years the commissioning of new capital is two-three and sometimes four-five times in excess of the decommissioned old capital. Especially since an analysis of the work of advanced industrial associations and enterprises which have a stably high level of production effectiveness shows very obviously that the chief factor in their achievement is rapid renewal, and by no means quantitative but qualitative--that is, with a consistent shift to increasingly improved technologies which require fewer and fewer employees. Expenditures are lowered here to the low production repair sphere. In addition, the assortment of output produced by them is renewed and improved.

Thus, the methods of economic management and effect, and the entire economic mechanism require a further improvement in the following directions:

first, a strengthening of centralized planning by means of its more accurate structural balance and reorientation, involving the use of the latest methods of full-scale balances and special purpose methods (also with regard to the limited nature of the various resources and the necessity of selecting from among the possible development variants the optimal ones which accord with the strategic goals and criteria of the maximum satisfaction of the consumer and the receipt of effect); the organic combination in the management of the single national economic complex of a republic and regional division of labor, specialization and cooperation of production, branch and regional breakdowns of a plan with the maximum development of the initiative and interest of local agencies in the overall and effective use of local resources;

secondly, the ensuring of stricter organically coordinated production plans with their resource, price, financial support and consumer demand in order to create sufficiently stable economic conditions for the full cost accounting activity of associations and enterprises; an optimization of the coordination between the action of the price and financial and credit mechanisms; an elimination of the tendency toward rising costs; the exclusion of gratis subsidies; and the stimulation of the growth of budgetary accumulations and cost accounting funds;

thirdly, a thorough expansion of the rights and possibilities in the matter of cost-accounting maneuvering of labor collectives, strengthening their feeling of socialist ownership and increasing their economic responsibility for the final results of their work (development of initiative and socialist enterprise of executives and specialists, their accountability for their own labor collective,--the exclusion of incompetent intervention--one of the most important directions for creating a more effective mechanism at the lower level);

fourthly, changes in accordance with a review of the functions and competences "from above" and "from below"--of the structure of economic management, its integration and gradual shift to cost accounting foundations; the retraining of the leadership staff and its training in economic methods of management;

fifthly, a corresponding review of the structural, investment, price, financial, and credit policy (including foreign trade and internal economic relations).

All of these, the most sensitive methods of economic management have to be brought into correspondence with the new conditions of socialist economic management. An especial role is being assigned here to the strengthening of credit levers and to the exclusion of gratis payments and leveling--as contradicting the basic principles of socialism.

For these and other directions the economic institutes of the Academy of Sciences Ukrainian SSR, jointly with Gosplan USSR, are conducting profound development work whose results are being presented to directive agencies. In the drafts of the plan for the economic and social development of the republic for the forthcoming 12th Five-Year Plan and for a more distant prospect there has been deeper and more fundamental work on the priorities and structural changes in the direction of accelerating the rates of scientific and technological progress, on the realization of the Comprehensive Program for the development of the production of consumer goods and services, and also the issues of balance, the involvement of the internal reserves of the economy's

resources and the growth of labor productivity, and the covering of growing consumer demand. At the same time, there will be a demand for a more fundamental solution of the problem of the development and improvement of cost accounting relations and of the economic interest and responsibility of labor collectives and of all of the elements of economic management for the final results of their work.

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RESOURCE UTILIZATION AND SUPPLY

1984 ROUND-TABLE DISCUSSION OF SUPPLY PROBLEMS UPDATED

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 2, Feb 85 pp 91-98

[Article: "After Magazine Article"]

[Text] PLANOVOYE KHOZYAYSTVO (No 2, 1984) has published materials from the round table conference in which they discussed problems of strengthening delivery discipline in the modern stage. Participating in the discussion were workers of the USSR Gosplan, the ministries and production associations as well as associates of scientific institutions. A year has passed since the time of publication of the materials from this meeting. In connection with this the magazine's editorial staff has once again requested that certain participants in the conference discuss measures directed toward strengthening delivery discipline.

G. Voronovskiy, first deputy minister of the electrical equipment industry. Under the conditions of the economic experiment, the sale of products taking into account the fulfillment of delivery commitments is the main indicator in evaluating the economic activity of associations (enterprises). This has a positive effect on the overall results of the work of the enterprises of the electrical equipment industry: during 10 months of 1984 the plan for the volume of product sales taking into account agreements was fulfilled by 98.8 percent (in 1983 during this same period--96.7 percent). The number of enterprises that have made all deliveries has doubled, and the total delivery failures has decreased to two-fifths of the former level. Of the enterprises that did not fulfill contractual commitments, 80 percent improved this indicator as compared to 1983, and about half of them fulfilled assignments for deliveries by more than 99 percent. These enterprises are close to 100 percent fulfillment of deliveries under agreements.

A positive role has been played by the following factors here: the earlier time periods for the approval of the 1984 plan, prompt allotment of funds and orders, strengthening of contacts with territorial supply organizations and the improvement of transportation work. Nonetheless, there remain more than 1 percent before reaching 100 percent fulfillment of commitments. Analysis has shown that to accomplish this it is necessary to further improve operational calendar planning, to step up control over production, and to raise the level of labor organization and competition. A considerable number

of failures to make deliveries have been brought about by interruptions in material and technical supply and the unsatisfactory transportation service.

The ministry sees its main tasks in further improving planning and achieving greater balance of production plans with material and technical supply, production capacities and the needs of the national economy for various kinds of electrical equipment. Certain results have already been achieved in this area. The plan for 1985 was formulated 2.5 months earlier than it was last year. With the participation of central planning agencies, an attempt was made for the first time to refrain from preliminary orders for raw material, processed material and certain batching items. On the basis of funds for material and technical resources which were refined by the USSR Gosplan, the ministry has distributed to the VPO [All-Union Production Association] and the enterprise's specific suppliers of materials for 1985 with a breakdown for the past years. Orders for a broad list of products were submitted to the enterprises along with the limits on material resources.

But certain issues require further improvement and go beyond the competence of the ministry. The enterprises are continuing to experience difficulties with the sale of products under agreements because of the nontransit norm for deliveries. High transit norms are the reason for the irregularity of deliveries and they lead to the creation of large above-normative supplies. Apparently, in those cases where the products are ordered in nontransit norms, the manufacturing plants have the opportunity to dispatch them to Gosplan territorial bases. But if these products are ordered by several consumers, an agreement for delivery must be concluded with the fund holder, who is obligated to receive the products and distribute them independently.

In our opinion, the time has come to apply stricter measures for increasing the material responsibility of the consumers when they reject products that have been accepted for production, and at the same time we must increase the legal and financial responsibility of the USSR Gosplan agencies. In the event that the consumers reject the funds that are allotted, the manufactured products should be redistributed under the established policy or sent to the territorial bases of the USSR Gosplan with a payment for the value.

It is also necessary to solve the problem of increasing the responsibility of transportation organizations for prompt delivery of products and also suppliers who fail to meet deadlines for the delivery of raw and processed materials. Our interrelations here must be improved on a cost-accounting [khozraschet] basis, evaluating and stimulating the activity of USSR Gosplan agencies and transportation organizations on the same basis as the enterprises of the electrical equipment industry are--in terms of the fulfillment of contractual commitments.

The system of direct long-term economic ties is also in need of further improvement. It seems that it would be expedient to remove from funding those electrical equipment products for which the need is permanently satisfied--here it is necessary to change over to direct contractual relations. In this case the enterprises have been passive observers of the demand for their products while they could have actively influenced their prompt and rapid replacement and formed a future portfolio of orders.

These and other factors will make it possible for the electrical equipment industry to considerably raise the level of fulfillment of contractual commitments.

D. Ukrainskiy, division chief of the USSR Gosplan. Last year, after our first round table, there was justification for drawing the following conclusions. The inclusion of the indicator of sales taking into account the fulfillment of contractual commitments among the main evaluation indicators for the enterprise has produced certain results both for production associations (enterprises) of ministries participating in the economic experiment and for industry as a whole.

The effect of the comprehensive measures in the area of improving planning and economic stimulation also has its positive aspects. The role of the preplanning period has increased. It has become longer and this makes it possible to develop a production program taking into account the requirements of the immediate consumers of the products. The system of intraplant planning and bonuses is improving at many enterprises. It is oriented toward the final result--the delivery of products of the necessary assortment and within the established time periods. Here work is being done to reduce the number of agreements. For example, while in 1983 during the preplanning period in the Ministry of the Electrical Equipment Industry there were 325,000 of them, in 1984, with the formation of the plan for 1985, there were 261,000.

An essential increase in the material incentive fund with the fulfillment of commitments for the delivery of products opened up the possibility for the administrations of the enterprises to create a system of bonuses for all services for the final result. Since the process of production and delivery of products goes beyond the framework of the activity of an individual enterprise, its further improvement requires changes in the area of material and technical supply, the work of transportation organizations, the system of payment for the delivered products, norm-setting for reserves of prepared products with the suppliers and consumers, the establishment of closer relations between industry and trade and the development of direct long-term economic ties.

The form adopted by the USSR Gosplan of dispatching final products in nontransit quantities addressed to territorial organizations in the place where the consumer is located should be reinforced by a contractual form of relations. In our opinion, only contractual relations will be able to make USSR Gosplan organizations into large distributors of products which are sent in nontransit norms to an immense quantity of consumers, and will make it possible to sharply reduce the number of contractual commitments, to simplify accounting, to improve the regularity of production and to utilize transportation more effectively.

At the present time the result of the operation of the enterprises for producing consumer goods and organizing trade is being generalized. As a preliminary analysis showed, bringing their interests closer together will provide for a considerable augmentation of the goods on the market both quantitatively and qualitatively.

Thus, in spite of the positive results from introducing the new indicator into the practice of evaluating the activity of enterprises, in the future we will have to do a large amount of comprehensive work, as a result of which we shall put into action reserves not only from the individual enterprise, but throughout the entire planning system for management of the economy.

L. Verin, head specialist of the USSR Gosplan. In order to further strengthen delivery discipline and extend the economic experiment, the union main supply and sales administrations, main batching administrations and territorial agencies of the USSR Gosplan are setting tasks for prompt conclusion of agreements for deliveries in a volume that corresponds to the established plan and assignments and for more effective utilization of progressive ties, including direct, long-term economic ties. As for the supply of the consumers who are receiving products in nontransit (less than the minimal dispatch norms) quantities, at the round-table meeting (PLANOVOYE KHOZYAYSTVO, No 2, 1984) certain participants in the conference expressed criticism against material and technical supply agencies because of the difficulties that arose for the supply enterprises with the delivery of products in small batches. At the present time the USSR Gosplan has determined a policy for delivering products in nontransit batches (in quantities less than the minimal dispatch norms), which should be delivered to the place where the consumers are located through the territorial agencies. These problems should be solved in the stage of ordering the products (assigning the purchasers to the suppliers) along with the formulation of the corresponding agreements.

In the second quarter of 1984 USSR Gosplan agencies and the USSR People's Control Committee established that a number of enterprises are concluding agreements for the delivery of products in volumes less than stipulated by the established plans and allotted orders (delay in the distribution of funds by the fund holders, late issuance of orders to the suppliers and purchasers, refusals on the part of the recipients to accept the products that have been allotted and to conclude agreements, and so forth).

In order to increase control over prompt and complete conclusion of agreements, the USSR Gosplan has developed a proposal which involves increasing the economic responsibility for failure to fulfill plans for deliveries and shipments and which makes it incumbent upon the supplier enterprises to notify the planning agencies concerning incomplete formulation of deliveries of products in the agreements stipulated by the plan. Such information is sent to the main all-union supply and sales administration or another corresponding agency, which distributes the product (no later than 15 days before the beginning of the quarter) and which should within 10 days issue orders for the delivery of products to other purchasers. When this requirement is not met the products for which orders were issued under the established policy (that is, included in the delivery plans), but for which agreements were not concluded, will not be taken into account in the fulfillment of deliveries. Taking this proposal into account, the USSR Central Statistical Administration is making the necessary changes in statistical reporting.

The USSR Gossnab is devoting serious attention to improving direct long-term economic ties for the delivery of products. In August 1984 the board of the USSR Gossnab, having discussed the question of the course of fulfillment of the plan for deliveries of industrial products under agreements, made it incumbent on the all-union supply and sales administrations to pay more attention to the quality and stability of the long-term agreements that are concluded between the supply enterprises and the consumers. It is intended to increase their role in the formation of production plans for the supply enterprises, taking into account the orders from the consumers in providing for reliability of deliveries.

In conjunction with the ministries and departments, the USSR Gossnab intends to prepare during the first half of 1985 a draft of a plan for the development of direct long-term economic ties for the delivery of products under the 12th Five-Year Plan. Here one should take into account the desires of the consumers to maintain stability of ties and reduce minimal norms for assignment (delivery volumes) of products.

The USSR Gossnab recommends utilizing, in addition to the usual forms of contractual ties which provide for supply to the consumers, other positive forms as well. Thus having studied the practice which exists in certain territorial agencies of delivering resources from enterprises on the request of the consumers (the Mosgormetallosnabsbyt Association of the Moscow City Main Territorial Administration), the USSR Gossnab, on the basis of the need for more efficient and economical utilization of material values and the need for preventing the formation of above-normative supplies of raw and processed materials with the consumers, in September 1984 recommended to the gossnabs of the union republics and the main territorial administrations that they more extensively introduce this supply experience.

V. Il'in, subdivision chief of the USSR Gosplan. The results of the work of industry during 10 months of 1984 show that, as compared with the corresponding period of 1983, the level of fulfillment of assignments and commitments for the deliveries of products increased and amounted to 98.4 percent. The sum of undelivered products was reduced by 30 percent. The number of enterprises that fulfilled all their deliveries reached 64 percent as compared to 56 percent in 1983.

Production associations (enterprises) of the ministries that changed over to the economic experiment beginning on 1 January 1984 have improved the fulfillment of contractual commitments. For example, the percentage of fulfillment of deliveries of products under agreements in the Ministry of Heavy Machine Building increased from 96.1 to 99.3 percent. In these ministries the number of enterprises that fulfilled their deliveries by 100 percent have doubled. In other branches there were also quite a few enterprises that reached this indicator. These include, above all, enterprises of the Belorussian SSR Ministry of Light Industry, the Ukrainian SSR Ministry of the Food Industry and the Lithuanian SSR Ministry of Local Industry. Approaching them are production associations (enterprises) of the USSR Ministry of the Gas Industry and Ministry of Nonferrous Metallurgy (99.6 percent), Ministry of the Copper Industry (99.5 percent), Ministry of Tractor and Agricultural Machine Building (99.2 percent) and so forth. This year

there is to be a certain change for the better in the work of metallurgists as well, as was reflected in the fulfillment of orders by the consumers (98.2 percent for 10 months of 1984 as compared to 97.3 percent in 1983).

The figures that have been presented show that the measures adopted in keeping with the decree of the CPSU Central Committee and the USSR Council of Ministers (April 1983) concerning strengthening of delivery discipline are being carried out successfully. At the same time there is still a great deal to do. First of all it is necessary to implement a complex of measures in the area of improvement of the organization of planning of production of production associations (enterprises), increasing the role of contractual relations, developing material and technical supply, restructuring intraplant planning, introducing order into operational calendar planning, and so forth. A certain role has been assigned to the indicator of the fulfillment of deliveries--the main evaluation indicator.

The USSR Gosplan, the USSR Gosstrib and a number of interested ministries and departments are continuing work for further improvement of problems regarding product deliveries. Among them are increasing the responsibility of transportation organizations for the fulfillment of plans for the shipment of cargo. This problem can be solved with the introduction of an evaluation of the results of economic activity and economic incentives for transportation organizations to fulfill the plans for shipments for each cargo dispatcher. To do this, in our opinion, it would be expedient to conduct an economic experiment on a number of railroads beginning on 1 January 1986.

Yu. Shilin, division chief of the NIIMS under the USSR Gosplan. At a meeting of the Politburo of the CPSU Central Committee of 15 November 1984 Comrade K. U. Chernenko emphasized the need to achieve complete fulfillment of agreements everywhere. The solution to this problem occupies one of the central places in the management of the national economy and should be regarded as a most important goal of improving the economic mechanism, including in the sphere of material and technical supply.

The problems that have been posed require of the enterprises and ministries that have been changed over to the economic experiment higher final results that are received on the basis of the additional rights and possibilities that have been granted to them, a higher level of discipline in product deliveries, and more complete fulfillment of contractual commitments as one of the main indicators of work and industry. But no less important is the relationship between the orders of agencies that plan material and technical supply and the production plans of the branches and the enterprises.

Under the conditions of increased economic independence of industrial enterprises, the completeness and quality of the reflection in their production plans of orders for the output of products is becoming an increasingly decisive factor in balance, and, as a result, the effectiveness of national economic planning in the achievement of the necessary rates of economic growth. This means that the effectiveness of the work of industry should be defined as the degree of fulfillment of commitments that have been made for the delivery of products as well as the level of acceptance of orders for execution. An important condition for improving the economic mechanism is

the fact that the requirement for unconditional fulfillment of the indicator of contractual commitments has not made it possible to "adapt" to it the reality of the enterprises through reducing the difficulty of the delivery plans, but has been achieved through increasing labor productivity and economizing on all kinds of resources.

The increased independence of the industrial enterprises in planning production entails the need to strengthen the centralized planned basis in the organization and planning of product deliveries. It is precisely this priority with respect to the interests of individual production units that should condition the priority of the order which is reflected in the delivery plans and in production planning. In other words, the delivery plan should acquire the force of law to no less a degree than the production plan. Only with this approach will the plan for material and technical supply, in turn, receive a basis with which it will be possible to pose the question of guaranteed satisfaction of the needs of production.

In connection with this it would be expedient to revise certain issues related to the organization of production planning and material and technical supply, in particular: to eliminate parallelism, to simplify the system of distribution of material resources; to order the prerogatives of planning agencies in detailing the plans at all levels, clearly concentrating the responsibility of each on the corresponding section of the plan at each level of management; to revise the assignment of the products list for the products that are being distributed; to develop effective forms of coordination of the entire system of plans, and so forth. This means a large amount of responsible work, which requires the concentration of the efforts of economic planners and the extensive participation of economic science as a whole.

A. Kostyurin, chief of the legal division of the Ministry of the Chemical Industry. Legal protection of the property interests of enterprises is not only necessary, but also a mandatory element of their activity. Economic sanctions are called up to contribute to increasing production indicators and improving the quality of products that are produced, and they contribute to the efforts of the collective in the fight against inefficiency as well as instill a feeling of personal responsibility for the matters entrusted to them.

The existing norms for material responsibility do not affect the cost-accounting interests of the internal subdivisions and the workers who are directly responsible for causing harm to the enterprise. And herein lies the main reason for their lack of significance as incentives.

The effectiveness of the economic sanctions that are applied in solving a number of problems is increasing considerably under the conditions of the changeover of the enterprises to complete intraplant cost accounting, on the one hand, and the withdrawal of the fines that are exacted from the material incentive fund of the enterprise that violated the contractual commitments, on the other. The material responsibility of these subdivisions of the enterprises for their failure to fulfill assignments and commitments is reflected in the form of reimbursement for losses and the payment of fines. The reimbursement for losses is the most effective method.

In order to increase the influence of sanctions on the cost-accounting interests of the internal subdivisions, one should clearly determine the area of their application which, in our opinion, should be all of the production and economic activity of the subdivision. Further influence of sanctions on the interests of the workers should be provided in the systems of their individual bonuses (depriving them of their bonuses completely or partially). For purposes of the educational significance of cost-accounting sanctions it is necessary to observe the principle of irreversibility of the consequences for violating contractual commitments.

Under the new working conditions, whereby the average amount of the earnings of the workers depends on the profit, the enterprise has a right to reduce the worker's bonus if the sum exacted from him does not make up for the damage caused by him to his subdivision and, consequently, to the enterprise as a whole.

In order to strengthen the legal protection of the property interests of the enterprises and further improve them, it is necessary for the application of cost-accounting sanctions to become a vital necessity for all enterprises.

G. Kulagina, division chief of Soyuzglavkhim. In the provisions of the experiment an important place is occupied by the question of forming the delivery plan, including for deliveries of chemical products, both in the stage of drawing up the plans for production and supply and in the process of their implementation. Their level depends primarily on the balance of production and raw material support. In this connection Soyuzglavkhim attaches a great deal of significance to keeping computer accounts of interproduct balance and the interbranch coordination conducted in the USSR Gosplan of the list of products distributed by the union main supply and sales administrations. The need for chemical products is calculated in parallel in the Soyuzglavkhim and the Ministry of the Chemical Industry. But the Soyuzglavkhim does not have data on the capacities for producing products at enterprises of the ministry, and the Ministry of the Chemical Industry does not have data concerning the needs for chemical products in other branches of the national economy. In order to raise the level of work for balanced planning, it is necessary, in our opinion, to conduct joint calculations with the active participation of the chemical industry division of the USSR Gosplan. The latter should also provide coordination for the fulfillment of these calculations at all stages of the formation of the plan. The quality of work for preparing delivery plans depends primarily on the way production works on these plans.

The decree of the CPSU Central Committee and the USSR Council of Ministers, "On Improving Planning and Stepping Up the Influence of the Economic Mechanism on Increasing the Effectiveness of Production and Improving the Quality of Work," envisions strengthening the role of the five-year plan as the main form of planning and the basis for the organization of economic activity and the drawing up of the plan by earlier dates. But each year a large amount of work is being done with the ministries to coordinate the production plans. The Soyuzglavkhim refines the production plans along with the industrial associations and draws up protocols. When the plans are approved the

associations adjust them unilaterally. This is especially typical of the Soyuzkraska All-Union Association. Such changes have a negative effect on the delivery plan, which the Soyuzglavkhim must submit to the supply enterprises, ministries and territorial agencies of the USSR Gosplan 60 days before the beginning of the planning period, and to the consumers--45 days before the beginning of this period. As a rule, when the approved production plans are received in December and changes are made in them, even with a quarterly breakdown, it is necessary to adjust them again which, in turn, is reflected in the concluding and subsequently also the implementing of the delivery agreements. Under these conditions it is difficult to make any changes for the first quarter. Therefore, in our opinion, we should eliminate changes in the drafts of plans when they are approved without the coordination of the Soyuzglavkhim and not adjust the production plan for the first quarter.

Enterprises of the Ministry of the Chemical Industry have conducted certain measures directed toward raising the level of fulfillment of deliveries under agreements, and they have arranged for accounting of the delivery of products in keeping with the planning documents that have been issued, control over deliveries and so forth. In 1984 the situation improved somewhat as compared to 1983. But, as the results of the work of enterprises of the ministry during 11 months of this year show, the level of fulfillment of deliveries taking into account assignments and commitments for deliveries of chemical products remains low. Thus the sales plan in terms of the overall volume was fulfilled by 101.7 percent, and taking into account commitments for deliveries of products--by 97.2 percent. The number of enterprises that did not fulfill the plan for sales volumes taking into account commitments for deliveries reach 166; and 421.5 million rubles' worth of products were not delivered under agreements. More than 50 percent of the enterprises of the ministry are not providing for deliveries of the full volume of products stipulated in agreements that have been concluded, but the sales plan in terms of the overall volume is being overfulfilled.

The cause of the situation that has been created is the underfulfillment of the production plan. The production plan is not being realized for approximately 25 percent of the kinds of products that are distributed by Soyuzglavkhim, including soda ash, caustic soda, polyethylene, polystyrene, methanol, polypropylene, polyvinyl chloride laminate, chlorinated lime, calcium carbide and others.

With a selective inspection it was established that the planned volume of sales approved by the ministry does not correspond to the production plans or documents for the delivery of products since the volume of sales is approved (or adjusted during the course of the year) at the level of the actual fulfillment of the production plan. With this kind of situation there is a real possibility of fulfillment and overfulfillment of the plan for the overall volume of sales, but the real situation with respect to fulfillment of the plan for deliveries according to concluded agreements is concealed.

According to the instructions that are in effect, the level of fulfillment of deliveries in keeping with concluded agreements is reflected in report 1p (in value terms) and is determined depending on the planned sales volume. In Soyuzglavkhim in the Ministry of the Chemical Industry there is another kind

of report (1ps-khim) for each kind of product in physical units of measurement in the cross-section for the ministries and territorial agencies of the system of the USSR Gosstat. In essence it is precisely from these reports that one can judge the fulfillment of deliveries (at the present time the USSR Gosstat and the USSR Central Statistical Administration are refining the content of the form in favor of this indicator).

But the low discipline in submitting reports makes it impossible to utilize them fully. Thus with the established deadline of the third day of the month following the report, it was established: before the 10th of the month 28 percent of the reports come in, before the 20th--63 percent, and after the 20th--9 percent. Therefore the ministry must take the strictest measures for observing deadlines for submitting documentation.

In July 1983 the Ministry of the Chemical Industry approved the order, "On Improving Work for Fulfilling the Plan for Delivery of Products Under Concluded Agreements and Accepted Orders." It criticizes the production enterprises and industrial associations which are regularly failing to fulfill this indicator and it envisions concrete measures for radical improvement of the plans for the delivery of products.

In September 1983 the Ministry of the Chemical Industry conducted a unionwide conference of workers of economic services of the ministry at which they considered problems of developing a branch balanced annual plan for the production of products and ways of solving these problems; questions of increasing the work for fulfilling assignments and commitments for deliveries of products, and so forth.

At the present time measures are being taken for expansion of mutual exchange of information and joint operation of computer centers of the Ministry of the Chemical Industry and the USSR Gosstat (Soyuzglavkhim).

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REGIONAL DEVELOPMENT

BAM AREA INDUSTRIAL DEVELOPMENT PLANS DETAILED

Northern Baykal TPK

Moscow EKONOMICHESKAYA GAZETA in Russian No 8, Feb 85 p 15

[Article by N. Singur, subdivision chief of the USSR Gosplan, candidate of economic sciences]

[Text] The Northern Baykal Territorial Production Complex is being formed on the basis of various natural resources in the Buryat ASSR, through which the Baykal-Amur Mainline passes. In the first stage of it two relatively separate industrial units will be created: the Baykal and the Muyya-Vitim. Each of them will have its own production specialization, but both will be oriented toward the development of branches of industry that involve the extraction of resources.

Even under the current five-year plan it is intended to complete prospecting of the Kholodninskoye deposit of lead and zinc ores which is located not far from the BAM. Along with the Ozeroye and Gorevskoye, it will be a good raw material base for nonferrous metallurgy enterprises.

In the next stages of development of the TPK the Oldakinskoye manganese deposit and the Ulurskoye graphite deposit will be assimilated. They are located at a distance of from 30 to 11 kilometers from the BAM.

The assimilation of the immense deposits of the Synnyrskiy area, which is located in the eastern part of the Northern Baykal TPK, is of considerable interest. The synnyrites contained in this deposit are compound ores. The solution to the problem of their effective comprehensive processing will make it possible to organize the production of nonchlorine potassium fertilizers in a volume of about a million tons a year and to obtain approximately a million tons of aluminum which is necessary for the large aluminum industry that is developing in Eastern Siberia. Cement will be an important byproduct.

In connection with this there is undoubtedly an interest in the proposal of the All-Union Scientific Research and Design Institute of Halurgy (VNIIG) concerning the creation of an economically far-reaching industrial complex for producing potassium fertilizers, aluminum and cement using the raw material of the Synnyrskiy area. In our opinion, it would be expedient for the Ministry

of the Fertilizer Industry in conjunction with scientific research institutes to complete in the near future the development of the technical and economic substantiation for selecting the most promising technological systems and organizing industrial processing of synnyrites. This will make it possible to envision under the 12th Five-Year Plan the construction of an experimental installation for verifying the technical solutions that have been found.

The Molodezhnoye deposit of serpentine asbestos in the Northern Baykal TPK is being prepared for assimilation. The concentration of textile varieties of asbestos in its ores is 16 times greater and the supplies are approximately the same as in all other deposits that are being worked in the country.

Taking into account the uniqueness of the Molodezhnoye deposit (the long-fibered asbestos has a broad range of application in various branches of the economy and is in demand on the world market), the USSR Ministry of the Construction Materials Industry should accelerate the large volume of preparatory work and the creation of the production and social-domestic infrastructures which are associated with the construction of the Molodezhnoye Ore-Enriching Combine, which could become the main source of raw material and semimanufactured products for producing slate, pipes, and asbestos cement items in the regions of Eastern Siberia and the Far East.

The Molodezhnoye GOK [Ore-Enriching Combine], around which additional facilities for service and auxiliary productions and infrastructure branches will gradually appear, will in the future become the nucleus of a large industrial center in the Northern Baykal TPK.

The usable supply of timber resources of the Northern Baykal TPK, which is estimated at 200 million cubic meters, makes it possible to organize a timber industry complex here by creating timber industry enterprises with capacities for shipping 400,000 cubic meters of timber a year.

The prospects for economic assimilation of the considerable territory of the BAM zone, including the Northern Baykal TPK, involved the construction of the Mokskaya GES on the Vitim River with an average output over many years of up to 8 million kilowatt-hours of electric power. The area of the GES is located 25 kilometers south of the BAM Vitim station, not far from large potential consumers of electric energy--the Udokanskiy and Molodezhniy GOK's, and also the Mamsk-Bodaybinskiy energy region in Irkutsk Oblast. The introduction of the GES will make it possible to increase the handling capacity of the electric power transmission lines for transporting electric power from Siberia to the Far East.

The growth of the population resulting from the economic assimilation of the BAM zone, including the Northern Baykal TPK, sets forth the task of creating a food base. An analysis of the climatic, soil and vegetation resources of the territory of the Northern Baykal TPK made it possible for scientists of the Institute of Biology of the Buryat branch of the Siberian Branch of the USSR Academy of Sciences and the Buryat Comprehensive Scientific Research Institute of Agriculture of the Siberian branch of VASKhNIL to suggest as promising agricultural bases for the entire Western section of the BAM zone, the Muyskaya and Barguzinskaya basins of the Buryat ASSR.

According to data of the Institute of Biology, in the Muyskaya basin more than 7,000 hectares could be brought into active agricultural circulation in the first stage of assimilation, and an equal number in the second stage. This will make it possible to create specialized farms for producing meat, potatoes and vegetables. The favorable weather conditions and the adequate quantity of precipitation guarantee large yields. Some of the most productive soil in the Muyskaya basin is found in the floodlands of the Vitim River. The construction of the Mokskaya GES will create conditions for regulating its flow and for conducting hydroameliorative work.

Research from VASKhNIL shows that the assimilation of the Barguzinskaya basin (which involves the construction of an irrigation system) opens up the prospects for increasing the production of food products here to volumes that are sufficient for satisfying the needs of the population of the Baykal regions in the Western part of the BAM zone. We are speaking here particularly about milk, whole milk products, a local assortment of vegetables and potatoes.

An indispensable condition for the formation of the Northern Baykal TPK is the development of a transportation system whose backbone would be the BAM. In the future it would be expedient to construct a meridional line between the Baykal-Amur and Trans-Siberian mainlines on the Buryat section of the BAM, and also a number of highways, particularly to the Molodozhnoye and Kholodninskiy GOK's, the Mokskaya GES and others.

Many of the facilities of the Northern Baykal TPK are in the water protection zone of the Baykal basin where special conditions have been established for the utilization of natural resources. This places increased requirements on the ministries and departments concerning the development and implementation of plans for the enterprises.

Southern Yakutsk TPK

Moscow EKONOMICHESKAYA GAZETA in Russian No 11, Mar 85 p 24

[Text] Recently the Politburo of the CPSU Central Committee approved proposals concerning the construction in 1985-1995 of a railroad line that would connect the Baykal-Amur Mainline with the city of Yakutsk. This railroad line would make it possible to provide stable transportation ties in the Yakut ASSR and the increasing shipments of cargo for the development of branches of the national economy of this region, and it will also make it possible to utilize the natural wealth of Yakutiya more intensively.

Continuing the publication of materials on the economic assimilation of the zone of the Baykal-Amur Mainline, we are publishing an article by the chief of the subdivision of the USSR Gosplan, N. Singura, concerning the development of the Southern Yakutsk TPK.

Because of the diversity and favorable combination of natural resources, Southern Yakutia is called the pearl of the BAM. On the territory of the TPK, which includes 38 percent of all the zone adjacent to the mainline, there are sufficient timber supplies, and deposits of coal, iron ore, nonferrous and rare metals, apatite, mica and other minerals have been discovered. Therefore the Southern Yakutsk is regarded by planning agencies as a region for priority assimilation.

Unique Coal Basin

One can divide the formation of the Southern Yakutsk TPK into two stages. The first (1976-1985) involves mainly bringing into industrial operation the coking coals in the basin of the Aldan River. According to estimates of geologists, 44 billion tons of valuable metallurgical fuel are concentrated here.

The technical possibilities of extracting coal in the Southern Yakutsk basin make it possible in the future to extract up to 150 million tons a year.

In 1980 a meridional line went into operation from the Bamovskaya station, which is on the Trans-Siberian Mainline, through the BAM "capital" of Tynda to Berkakit--the railroad gates of the Southern Yakutsk Complex. The introduction of the "small BAM," as this line is called, was a powerful factor for accelerating the economic assimilation of the region.

They are now actively working the largest of the numerous deposits in the Southern Yakutsk basin which is favorable in terms of hydrotechnical conditions for working--the Neryungrinskiy. On the basis of this under the 11th Five-Year Plan a large coal complex has been formed, which includes a mine for extracting 13 million tons of coal a year (including 9 million tons of high-quality coking coal), an enriching factory for processing 9 million tons a year and the first section of the GRES with a capacity of 570,000 kilowatts. In the future this station will be a large source of electric power for the BAM zone.

In a relatively short period of time the village and the present city of Neryungri and its environs were transformed. A large base was created for the construction industry, including a combine for large-panel housing construction with a capacity of 100,000 square meters of dwelling space per year. Collectives were formed from the construction organizations of the USSR Ministry of the Coal Industry, the USSR Ministry of Power and Electrification and the USSR Ministry of Transport Construction. The Yakutuglestroy Combine alone is capable of annually carrying out more than 130 million rubles' worth of construction and installation work.

Along with the construction of production facilities, in the first stage of the formation of the Southern Yakutsk TPK they constructed hundreds of thousands of square meters of dwelling space, 11 kindergartens, six general educational schools and 18 stores and dining rooms. In Neryungri there are six music schools and four Houses of Pioneers in operation.

The immense funds invested in the creation of the Southern Yakutsk TPK are beginning to produce a return. During the past 4 years tens of millions of tons of high-quality coal have been sent for from here, which has significantly strengthened the fuel and energy base of the Far Eastern economic region.

The second stage in the development of the Southern Yakutsk TPK will begin basically with the 12th Five-Year Plan, although much preparatory work is being done for it at the present time. To the branches in existence here (coal industry, nonferrous metallurgy) will be added new productions of both unionwide and regional (Far Eastern) significance.

Under the 12th Five-Year Plan they will begin the construction of the Denisovskaya mine with a capacity of 3.6 million tons of coal a year, and then will come the Chul'makanskaya. Subsequently, along with the development of the production forces of the Far East and the favorable conditions of the external market it will be expedient to assimilate a number of other deposits of the Southern Yakutsk basin--the Kabaktinskoye, Verkhne-Yakokitskoye and the Muastakhstoye, which will be able to produce 8-9 million tons of coal annually and also 5.5 million tons of concentrate.

The Metallurgical Base

Directly related to the development of the coal industry of the Southern Yakutsk TPK is the creation of a new metallurgical base in the Far East.

The calculations show that the most economical variant of the satisfaction of the needs of the Far Eastern for high-grade rolled metal is the construction of a metallurgical combine here. The main deposits of iron ore which can become the raw material base are located in the Charo-Tokinskiy and Yuzhno-Aldanskiy iron ore regions. The known amounts of ore of the deposits in Yuzhno-Aldanskiy region alone (Tayezhnoye, Desovskoye, Pionerskoye and others), which are located to the north of the Southern Yakutsk coal basin near the planned railroad of Berkakit-Tommot-Yakutsk, amount to 1.8 billion tons.

There are many things in favor of locating the metallurgical combine here. These include the unique combination in Southern Yakutia on a relatively compact territory (with a radius of 150-200 kilometers) of iron ore, coking coal and auxiliary raw material for metallurgical production, the availability of energy resources, and reliable railroad communications with the consumers of the products.

Thus the railroad industry, the first part of which, judging from everything, will be the Tayezhnenskiy GOK and then, possibly, ferrous metallurgy, will be new branches of specialization for the Southern Yakutsk TPK in the second stage of its formation.

The Productivity Industry

A most important branch of specialization for the Southern Yakutsk TPK will be the apatite industry on the basis of the utilization of ores of the

Seligdarskoye deposit. This will make it possible to create in the rayon the production of mineral fertilizers which are now being shipped to Eastern Siberia in the Far East from Kazakhstan and Murmansk Oblast.

The Seligdarskoye apatite deposit is favorably distinguished from all the others known not only in the country, but also in the world by its favorable mining and geological conditions for operation and the high density of the supplies of ore. The concentration of phosphorus and hydride per unit of area here is 1.5-2 times higher than in the famous Khibinskoye deposits. Moreover practically all of the known supplies of ores of the Seligdarskoye desposit are accessible for working by the open pit method. The rock that is removed can be used for producing gravel and high grades of crushed sand. The wastes from enriching will serve as raw material for manufacturing silicate brick.

The phosphorus anhydride of Southern Yakutia will be sufficient for satisfying 85-90 percent of the demands of Siberia and the Far East for this kind of fertilizer. Moreover the economic effect from the assimilation of the deposit (taking into account the elimination of superlong distance shipments) will exceed 200 million rubles a year.

There is no doubt about the expediency of construction an ore-enriching combine on the basis of the Seligdarskoye deposit. The ministry which produces mineral fertilizers must accelerate the development of planning estimates in order to begin constructing the combine promptly under the 12th Five-Year Plan.

Continuation of the "Small BAM"

On the new railroad line between Tynda and Yakutsk, for the formation of the Southern Yakutsk TPK the section to Tømmot with a distance of 380 kilometers is of primary importance. It could be opened to traffic by 1990. This is one of the necessary conditions for the assimilation of the new deposits of coking coal, iron ore and Seligdarskoye apatites within the established time periods.

In nonferrous metallurgy a number of enterprises are to be reconstructed and there is also to be scientific research and experimental design work as well as technical and economic substantiations for the utilization of the placer deposits of the Aldanskiy gold ore region.

The timber industry of the Southern Yakutsk TPK will be developed basically for satisfying the internal needs of the region for wood construction materials and structures. In the region of the coal complex there is a need to organize a new timber industry enterprise which would ship an annual volume of timber of 200,000 cubic meters. In the future the same kind of enterprise should appear on the upper reaches of the Olekma River, where the Charo-Tokinskoye iron ore deposit will be assimilated.

Taking into account the rapid development of the mining industry with the utilization of the latest technical equipment, an important object of the 12th Five-Year Plan and the Southern Yakutsk TPK will be the plant for repairing large tires which will have a shop for manufacturing industrial rubber items.

The construction organizations of the USSR Ministry of the Coal Industry, Ministry of Power and Electrification and Ministry of Transport Construction, already having a sufficiently developed base, are in a position to solve problems of the second stage. But the functions of the general contractor for many of the facilities of production and cultural-domestic significance, and also housing for this period are the responsibility of the Ministry of Construction in the Far East and Trans-Baykal regions which, unfortunately, is not taking serious measures to prepare for work in this region, particularly on the Seligdarskiy GOK and the plant for the repair of large tires.

Questions of controlling the formation of the TPK are becoming more and more important. Of decisive significance here is efficient interaction between local soviet and planning agencies and the staff of the authorized USSR Gosplan for the Far Eastern economic region.

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INTRODUCTION OF NEW TECHNOLOGY

EXPERTS POINT OUT PROBLEMS OF INTRODUCING NEW TECHNOLOGY

Introduction Problems

Yerevan KOMMUNIST in Russian 1 Feb 85 p 2

[Article by V. Chalabov, candidate of technical sciences: "New Technology: Problems of Implementation;" passages in all caps printed in boldface]

[Text] The practical utilization of the fruits of research and development remains one of the most urgent problems. Certain economic and organizational measures to improve the economic mechanism must be implemented so that the potential of scientific-technical progress (NTP) can be used to the fullest and the corresponding effect can be realized.

During his meeting with workers at the Moscow Sickle and Hammer Metallurgical Plant, Comrade K. U. Chernenko noted the special significance of the technical retooling of the branch in the present stage and of introducing the latest advances of science and progressive know-how. This is an urgent demand of the time, indeed, of the era. These points are also raised in the decree of the CPSU Central Committee "On the Course of Fulfillment of Decisions of the June (1983) Plenum of the CPSU Central Committee by the Armenian Republic Party Organization." The republic's scientific-technical and production potential must be used more effectively.

How do things stand with the introduction of advances of science and technology into production?

Profits or Losses?

The paradox is that progressive technology, the application of which is known to be generally indicated, not only does not attract the attention of some managers of production but even meets their resistance. This impedes technological progress, reduces its effectiveness and causes considerable harm to the national economy.

According to statistical data, the republic did not carry out all planned new technology measures in 1981-83. As a rule, **NEW TECHNOLOGY PLANS ARE NOT FULFILLED AS WELL AS ALL OTHER PLANS. BETWEEN 1981 AND 1983, SCIENTIFIC INSTITUTIONS BELONGING TO THE REPUBLIC ACADEMY OF SCIENCES GENERATED 327**

POSITIVE SOLUTIONS AND ISSUED INVENTORS' CERTIFICATES. HOWEVER ONLY 63 WERE USED, INCLUDING 4 BY THE INSTITUTE OF GENERAL AND INORGANIC CHEMISTRY, WITH AN EFFECT OF 614,000 RUBLES.

Nonfulfillment of plans is not the only problem. Enterprise and association plans frequently do not correspond to the potential and tasks of technical and organizational development. APPROXIMATELY ONE-THIRD OF THE ENTERPRISES IN REPUBLIC INDUSTRY ARE ENGAGED IN THE INTRODUCTION OF NEW TECHNOLOGY MEASURES. THE AVERAGE INDUSTRIAL ENTERPRISE SPENDS 70,000-85,000 RUBLES ON NEW TECHNOLOGY, BUT REALIZES AN ANNUAL ECONOMIC EFFECT OF 60,000-75,000 RUBLES. TODAY APPROXIMATELY ONE-THIRD OF ALL FINISHED R&D WORK IS INTRODUCED. Is it not logical to conclude from this that the scale of our industry's effort to introduce new technology is inadequate, that ties between science and production are not sufficiently strong?

During the five-year plan, republic inventors received 1311 inventors' certificates; only 647 were introduced in the national economy and produced an economic effect of 65.4 million rubles. Republic enterprises belonging to the ministries of the chemical and electrical equipment industry use 27.1 and 33.3 percent of their inventions, respectively; the Ministry of Motor Transport, on the other hand, introduced only one invention with an effect of 300 rubles.

Another problem is that contradictions of an objective character arise. Science and technology develop unevenly: first one then another branch will be in the lead. Major discoveries and inventions occur first in one and then another area of science. They usually appear suddenly thereby causing a disproportion in the technical level between branches of production and even between divisions of enterprises. Yet another paradox arises: the disparity between innovations and the existing material-technological base, social forms of production organization and planning and management procedures. The extreme conditions entailed in the production and development of new machinery in a number of cases cause the temporary deterioration of the performance of enterprises, higher production costs and limited growth of production and profits...Who will agree to this?

Economic Measures

The economic mechanism is the principal means of securing the timely and broad introduction of measures to improve machinery, technology and progressive know-how in the national economy. The levers of the present mechanism do not entirely perform this function. Hence the task of improving economic and organizational elements in the management of NTP. At the same time, it should be noted that these measures can be implemented for little or no cost and can produce an effect that is not attainable by technical means.

The CPSU Central Committee and the USSR Council of Ministers adopted a decree "ON MEASURES FOR ACCELERATING SCIENTIFIC-TECHNICAL PROGRESS IN THE NATIONAL ECONOMY" and "ON ADDITIONAL MEASURES TO EXPAND THE RIGHTS OF INDUSTRIAL PRODUCTION ASSOCIATIONS (ENTERPRISES) IN PLANNING AND ECONOMIC ACTIVITY AND TO INCREASE THEIR RESPONSIBILITY FOR THEIR PERFORMANCE". Materials of plenums of the Armenian CP Central Committee call for the resolution of a number of problems relating to the improvement of the planned management of NTP.

Ties between science and production can also be exemplified by the Yerevan Polytechnical Institute. Out of the 44 economic contract works included in the introduction plans, in the last 2 years 34 topics with a combined projected effect of 2,149,000 rubles have not been implemented in practice. A similar situation was developed with respect to works performed at Yerevan State University: clients utilized only 23 out of the 60 works performed under contract. Money is spent on the development effort but the planned return is not forthcoming.

Studies conducted by the republic gosplan's Scientific Research Institute of Economics and Planning on the state of introduction of new technology and the causes of its "inhibition" offer convincing evidence of the need for additional measures that would substantially accelerate and expand the application of scientific-technical advances and increase their effectiveness. They include improvements in planning first of all. Plan indicators must become a reliable controlling lever. AT THE PRESENT TIME, PLANNING DOES NOT EMPLOY GENERAL INDICATORS OF THE TECHNICAL AND ORGANIZATIONAL LEVEL THAT WOULD BE USED ON A PAR WITH ECONOMIC INDICATORS IN COMPILING THE PLAN AND IN EVALUATING THE PERFORMANCE OF ENTERPRISES AND ASSOCIATIONS. While the decisive role is assigned to indicators of economic development, parameters of technical development must also be an uppermost consideration since the attainment of high economic results will otherwise be impossible. Lesser demands on technical progress plans; there is no direct economic lever for strengthening ties between science and production.

IT APPEARS EXPEDIENT TO INCLUDE SUCH INDICATORS AS THE RATE OF SCIENTIFIC-TECHNICAL PROGRESS, SCIENTIFIC INPUTS PER WORKER [naukovoorozhennost'], AND ANNUAL ECONOMIC EFFECT (THE LATTER IS PRESENTLY INCLUDED IN THE FIVE-YEAR PLAN) AS GENERAL INDICATORS IN THE ONE-YEAR PLANS OF ENTERPRISES AND ASSOCIATIONS. THIS IS THE DEMAND OF THE LOGIC OF DEVELOPMENT AND THE LAYING OF THE FOUNDATION FOR THE REALIZATION OF FUTURE, STRATEGIC TASKS.

The flexibility principle must be applied in planning. It must be applied especially during the introduction and running-in period of new machinery if it entails temporary production difficulties and the diminished possibility of producing the product, of obtaining a profit and of increasing labor productivity. All this must be related to the influence of the running-in process and taken into account in plans for the corresponding period. In the subsequent period, however, plan indicators will be raised to such a level that will accommodate previous, possibly lower indicators and will produce the additional effect.

This will exclude a situation in which the concern for the economic indicators of intensive plans precludes devoting the necessary attention to technical progress.

THE MANDATORY INCLUSION OF RATES OF SCIENTIFIC-TECHNICAL AND ORGANIZATIONAL PROGRESS IN THE SYSTEM OF CAPITAL-FORMING INDICATORS CAN ALSO BECOME AN IMPORTANT CONDITION TO THE STIMULATION OF THE INTRODUCTION OF NEW TECHNOLOGY. THIS WOULD INTENSIFY THE REGULATORY ROLE OF THIS INDICATOR. Wages and bonuses, which must be determined for all categories of personnel, including

engineering-technical personnel, on the basis of general performance and in particular on the basis of their technical return, will play an important part in the stimulation of work on new technology in this system. This excludes the constancy of wages not associated with changes in the results of labor.

The accelerated and expanded introduction of new technology demand the strengthening of special NTP management services at enterprises and in associations and the formation of new organizational links within the limits of normative relative costs of purely production-related and managerial works. In particular, IT IS PROPOSED TO INSTITUTE THE POST OF DEPUTY CHIEF ENGINEER FOR NTP AT ENTERPRISES AND IN ASSOCIATIONS AND TO ORGANIZE A DEPARTMENT FOR ANALYZING AND FORECASTING THE TECHNICAL AND ECONOMIC LEVEL OF PRODUCTION AND FOR THE ECONOMIC SUBSTANTIATION OF NEW MEASURES.

There is a need to establish temporary task forces made up of scientists, aides and specialists provided with the appropriate incentives and to enlist the aid of base laboratories of VUZ's and scientific research institutes in addressing the most important problems of technical and organizational progress. Enterprises and associations should be given more authority to resolve questions pertaining to the organizational structure of NTP management.

The Road to Interaction

In the acceleration and expansion of the introduction of scientific-technical and organizational innovations, much depends on the improvement of the financing of measures. ENTERPRISES AND ASSOCIATIONS SHOULD ESTABLISH THEIR OWN FUND FOR THE DEVELOPMENT OF SCIENCE AND TECHNOLOGY, SHOULD BE GIVEN GREATER OPPORTUNITY FOR USING BANK CREDIT MORE FREELY AND TO USE CAPITAL REPAIR FUNDS AND OTHER RESOURCES FOR TECHNICAL DEVELOPMENT IF NECESSARY.

The republic's finance ministry can do much to find effective forms of organizing the partnership between science and production, to strengthen financial and economic levers and to facilitate the accelerated introduction of the results of scientific research in the national economy.

THE MAXIMUM PROMOTION OF SCIENTIFIC-TECHNICAL PROGRESS AS AN EFFECTIVE INSTRUMENT FOR INCREASING BUDGET REVENUES MUST BE ADVANCED AS ONE OF THE MAIN DIRECTIONS IN THE WORK OF FINANCIAL ORGANS. At the present time, the Ministry of Finance must not focus its primary attention on efforts to raise revenues. Accordingly, the Ministry of Finance, as an agency with the responsibility of combating all types of mismanagement, must direct its efforts against its most flagrant form -- instances of inattention to the introduction of scientific-technical progress.

There is no area of financial and economic activity, no region or facility in the republic that does not have contact with personnel of the finance system. Let us add to this participation in various commissions and working groups on economizing material and fuel-energy resources, profits and production costs; on the control of negative phenomena, etc. A vast quantity of information at various levels is clearly concentrated in the hands of finance personnel.

Since they visit industrial facilities, organizations, ministries, and departments and at the same time study questions associated with financial and economic activity, they are able to present a detailed picture of the factors that determine the existing state of affairs, to find reserves for increasing production, conserving resources, lowering production costs, and identifying bottlenecks that impede the introduction of progressive technologies and modern scientific methods of management.

There is no doubt that such work will require deeper knowledge, going beyond the framework of existing stereotypes, the elimination of inertia, and the ability to look beyond individual negative facts to see the causes behind them. In other words, it will be necessary to work along creative, original lines.

One might ask why the Ministry of Finance is going about "someone else's" business and is taking the place of the duly appointed agencies. This formulation of the question is legitimate by virtue of the relatively incorrect understanding of the role and function of the financing agency.

In a word, the improvement of the introduction of scientific-technical and organizational measures opens up broad possibilities for search and initiative.

Some of the proposed economic and organizational measures are the fruits of scientific search. Naturally, they must be tested, debugged and re-defined before they can be applied in practice. Nonetheless, it is clear that the possibilities of scientific-technical progress must be used more effectively.

The Logic of Innovation

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 26 Mar 85 p 2

[Article by Academician I. Lukinov in Kiev: "The Logic of Technical Renovation"]

[Text] More and more of our enterprises and associations are supplied with the latest machinery and technology. Most of them are notable for their rational organization and high labor productivity. But there are also numerous enterprises that operate with obsolete machinery and yesterday's technology. The material-technical and organizational aspects of production contradict its socialist socioeconomic character to a certain degree.

This is the real contradiction of the present stage of our economy's development. In order to resolve it, we must "pull" lagging links in the national economy up to the level of the leading links. And this is only possible if there is a decisive breakthrough in the intensification of the economy based primarily on the acceleration of scientific-technical progress. Such is the key task that has been placed before all branches of the national economy by the 26th Party Congress and subsequent plenums of the CPSU Central Committee.

This task is naturally being resolved. Numerous facts could be cited here, but they are not our principal concern. On the whole, we have not yet succeeded in making major breakthroughs. The major reason here is ineptness in the planned management of scientific-technical progress. It is still not oriented toward the attainment of comprehensive and fundamentally new technological and organizational solutions. This is observable above all in the reconstruction and modernization of existing production facilities. Their worn-out and obsolete equipment is renovated at a rate of less than three percent a year and the technical retooling of enterprises is naturally in jeopardy. The "science-technology-production" cycle is protracted in time and this fact is negatively reflected in intensification.

The experience of many years confirms the fact that the planned management of scientific-technical progress produces the most tangible effect when there is cost accounting motivation and when all economic links bear strict economic responsibility for the end results. Collective and personal interests are in closest possible agreement and managers, specialists and workers are active in making technological and organizational improvements in associations and at enterprises that truly apply cost accounting incentive and development funds.

But no matter how we press for technical progress, the introduction of new technology will be the business of enthusiasts, a measure that does not produce a palpable economic effect, and progress will be slow. The important point is not even that new technology plans are not always fulfilled, that the proper demand for such fulfillment does not exist or that there is little economic responsibility and motivation to renovate production continuously. The most important consideration is oversight. The time has come to evaluate new technology plans not on the basis of the number of introduced technologies, but rather on the basis of actual changes in indicators of economic effectiveness: the growth of labor productivity, the conservation of material resources, the improvement of product quality, and the output-capital ratio.

The low level of analytical work in associations and at enterprises has long been the subject of discussion. It is true that engineering and economic services are still not up to the mark. They cope reasonably well with the short-term analysis of current costs and performance but do not analyze the present state and prospective development of the material-technical base. The experience of the Dnepropetrovsk Combine Plant suggests how this can best be done. The plant has drafted and is implementing a long-range technical development plan based specifically on the analysis of the technical and economic level of production and job certification.

When we speak of difficulties on the road to progress, we inevitably come up against the question of how to raise the creative activism of the collectives that are responsible for its fate. I note that there is no single answer. A complex of measures is needed.

Obviously, every link in the "applied science-production" chain must be made to depend on the end results. And this requires that this link be endowed with its own working capital, that it move in a closed circle, and that

precise oversight be exercised over the process of scientific and technical creativity and over the measure of its impact on the effectiveness of production.

To put it in simpler terms, labor collectives must be given broad economic latitude to exercise their initiative within the framework of the state's unified scientific and technical policy. This must include the right to choose directions of scientific search in accordance with the clients' needs and the right to dispose over their own material-technical and financial resources. On the other hand, these rights must be balanced by no less complete economic and legal responsibility for performance. And when the collectives of applied [research] institutes, design offices and science-production associations live from their own income, they will without question be oriented accordingly toward highly effective labor.

In our opinion, the time has come to abandon the gratuitous financing of scientific and technical organizations from the budget or the unified fund for the development of science and technology. Such financing is permissible only for the development of fundamentally new directions or for the period in which scientific reserves are being formed. In all other cases, the development effort must be financed by the client. This will reduce the client's assimilation problems and will put an end to "throw-away" work for all time. The level of prices on every development effort will then be determined on the basis of the real effect of new technology, a system of machines, or an instrument to the client and not on the basis of estimated costs.

Nor is the existing system of bonuses for the introduction of new technology as yet coordinated with the real growth of effectiveness. The sums allocated for this purpose usually do not exceed 1.5 percent of total economic incentive funds. Naturally the influence of such a stimulus is almost imperceptible. It is more rational to concentrate bonus funds in the main direction: to increase the effectiveness of production and to award bonuses on the basis of the criterion -- more, cheaper, better; and to observe the deadline for filling orders to the letter.

Nor does the development fund fully maintain production capacities. Even under the conditions of an economic experiment, the size of this fund is such that it would take enterprises belonging to the Ukrainian SSR Ministry of the Food Industry, for example, almost two decades to renovate their worn-out equipment.

The fact that the emphasis in recent years has been on fostering new economic thought is, of course, good. But it is also essential to create conditions such that this thought would find an application. One of them is the right of managers and the collective to form and responsibly use capital for technical retooling. This capital cannot be furnished gratuitously. This will make them uncertain of their actions. That which we today refer to as the "free remainder" is not obtained by chance -- it is the "dry remainder" of the manager's enterprising nature. And this should be left at his disposal. And if it is drawn into economic circulation, it should be used on a repayable basis and the bank should pay interest for it.

At the same time that we improve the economic methods of managing scientific and technical progress, we must not leave organizational structures unchanged. Target program structures and management methods correspond best to the specifics of the "science-technology-production" cycle. Steps, albeit timid, are being taken in this direction. The penchant for the old, time-tested organization of management makes itself known. But it is incapable of flexible reaction to the new demands of scientific-technical progress and restricts the independence of lower-echelon links. Their leaders are bound up in complicated, stereotypic positions.

I think that extra-departmental engineering centers based on scientific, project planning, design, and technological institutions could now play a prominent part in the acceleration of scientific-technical progress. Their formation at a number of institutes belonging to the Ukrainian SSR Academy of Sciences, for example, is not by chance; with the passage of time, the contradictions between the need for the interbranch integration of science and technology and departmental interests becomes increasingly palpable. They are manifested in the "monopoly" of head institutes of the branches that produce the equipment.

The logic of scientific-technical progress is higher than departmental interests; it is of a statewide nature. And when national economic interests yield under the pressure of departmental interests, we hear the customers complaining about the poor equipment and the fact that they are unable to influence or alter anything. Indeed, this situation is predetermined by the fact that the customer is bound to a single supplier who is a monopolist vis-a-vis the customer. And as a result, the customer has less direct control over the quality and effectiveness of the development effort.

The comprehensive resolution of economic and organizational problems associated with the acceleration of scientific-technical progress undoubtedly requires an increase in economic responsibility at all levels and the inculcation of a high sense of collective socialist proprietorship, of every worker with a sense of duty to society for highly effective performance.

5013

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INTRODUCTION OF NEW TECHNOLOGY

EXPERTS RESPOND TO QUERIES ON TECHNOLOGICAL PROGRESS

Moscow. PLANOVOYE KHOZYAYSTVO in Russian No 2, Feb 85 pp 22-35

[Round table discussion: "Improvement of Planning of Science and Technology"]

[Text] Intensification of the economy and its increased effectiveness presuppose, first and foremost, more complete utilization of the country's scientific potential and all-around acceleration of scientific and technical progress. Successful development of science and technology and a reduction of the time periods for the introduction of their achievements into production depend largely on improving management and planning of these processes. The editorial staff has turned to a number of scientists and practical workers and asked them to answer the following questions:

What is necessary in order to increase the mobilizing role of the plan in the acceleration of scientific and technical progress;

How does one organically intercoordinate the production plan and new technical equipment;

How should one select and test new technical equipment and stimulate its introduction.

Z. Korovina (division chief of the Institute of Economics of Industry of the Ukrainian SSR Academy of Sciences, doctor of economic sciences, professor). In order to increase the mobilizing role of the plan in accelerating scientific and technical progress, it would be expedient to combine all new technical equipment into one section. Moreover, it is necessary to change over from planning a broad list of quantitative conventional and intermediate indicators to qualitative indicators (in the form of the actual increase in profit) and the final results of production.

At the present time the sections of the plan for technical development and organization of production include scientific and technical measures in the following areas: the creation and assimilation of new kinds of products, the introduction of progressive technology, mechanization and automation of production, the introduction of computer equipment and so forth. These measures, which cost from several tens to several thousands of rubles, are being implemented in operating shops through special funds for financing: the

unified fund for the development of science and technology, the fund for the development of production, and also Gosbank loans and the production cost of the products. At machine-building enterprises these measures include only the assimilation of the first industrial series. As soon as the machine is assimilated and transferred to series production it ceases to be new for the enterprise and is not included in the plans and reports for new technical equipment. The number of these measures is relatively great and at each plant amounts to from 20 to 300.

Research has shown that acceleration of scientific and technical progress at the enterprises has been conditioned by the introduction and assimilation of new productions which are created, as a rule, through technical re-equipment, reconstruction, expansion and new construction. Expenditures on the implementation of these measures comprise 90 percent (in machine-building--70 percent) of all expenditures on scientific and technical progress.

But the new productions are far from always included in the existing forms of the plan for technical development and statistical reports on expenditures for conducting scientific and technical measures; they are taken into account only in the section for capital construction. When planning and accounting for capital investments basic attention is concentrated on the quantitative indicators, that is, the value of the capital expenditures of the capacities and fixed capital that have been put into operation. Thus the plans and the statistical reports on capital investments and new productions have turned out to be different from the plans and reports for scientific and technical progress. Therefore it would be expedient to include in the plans for technical development all areas and forms of the introduction of new technical equipment--scientific and technical measures, technical re-equipment, reconstruction, expansion, new construction and also the suggestions of efficiency experts and inventors.

In order to increase the mobilizing influence of the plan on accelerating scientific and technical progress, it is necessary to organize comprehensive, systematic planning of the effectiveness of all technical equipment that is introduced. This will make it possible, on the one hand, to concentrate the attention of specialists on the more costly facilities that are being introduced into operation on the basis of reconstruction, expansion and technical re-equipment, and, on the other, not to lose time on repeated listing of an immense number of measures that do not exert an essential influence on the final results of production. Moreover it is necessary to sharply reduce the number of planning indicators for scientific and technical progress.

The main indicator from which bonuses are paid is the annual economic effect or savings calculated on the basis of the sum of calculated expenditures for the old and new technical equipment. This indicator is being utilized extensively and successfully for selecting the best variant of capital investments and measures for the introduction of new technical equipment. In order to evaluate the economic effect and the effectiveness from technical equipment that is already being used in terms of all of the aforementioned areas of its introduction, it would be expedient to utilize the actual indicators for the growth of profit (reduction of production cost of

products). This is conditioned by the fact that the current high annual (conventional) effect and also profit from measures for new technical equipment, streamlining and invention are conventional amounts which are not real and, as a rule, do not lead to increasing the sum of profit in the enterprises and associations as a whole.

The main indicator for planning and evaluating the new productions is the calendar time for their introduction into operation. Striving to keep within the established deadlines, the builders frequently submit for acceptance facilities that are not ready for operation, that is, they are incomplete (without service and auxiliary shops, sometimes with an incomplete technological cycle), and many unfinished details. In the future the operation of such productions will lead to immense losses and prolonged time periods for assimilation. Because of this, frequently profitable enterprises are changed into enterprises with planned losses for many years. This, for example, happened with the Donetsk Metallurgical Plant imeni V. I. Lenin when the new electric steel-smelting shop was put into operation.

Thus in order to increase the mobilizing role of the plan, it is necessary to plan final actual results which can be reflected in the form of an increase in the volume of products that are produced and in increased profit (reduced production cost) on the whole for all new technical equipment, and including in terms of the forms of its introduction. It is important to plan the fulfillment and the reduction of normative time periods for the assimilation of the planning indicators (volume and production cost of products) of new productions that are put into operation. They must be approved from above just as the time periods for the introduction of facilities into operation are approved.

In keeping with the standard methods for the development of the annual and five-year plans, the first section in them to be formulated is the one for production and sales of products, and the second--the section for technical development and organization of production. The section of the plan for capital construction and capital investments is in fifth place.

In order to determine the volume of production and sales of products in the first section and increased effectiveness of production in the third, it is necessary to know not only the output of products at existing facilities, but also the increase in this output as a result of the introduction of new capacities and capital as well as the introduction of measures for new technical equipment. And this means that the second and fifth sections of the plan can be expediently combined into one section entitled "Technical Development of the Enterprise," which should include the introduction of all new technical equipment. It is necessary for this to precede the development of all other sections of the plan, including the section entitled "Production and Sales of Products."

In order to improve the selection and to arrange the production of only effective technical equipment, the entire system of control of new technical equipment should be oriented toward the consumer enterprise. At the present time the consumers have no influence on the technical and economic indicators or the quality of manufacture of the technical equipment they use. Therefore

it is necessary to expand their independence in questions of selecting new machines and equipment. The enterprises should also participate actively in the formation of long-range plan for the technical development of the branch within the framework of the unified technical policy that is being carried out. Here it is necessary to determine the long-range needs of the enterprise for specific kinds of new technical equipment: machines, sets of equipment, machine tools, means of mechanization and technology. In keeping with this, assignment-orders should be formulated for the developer enterprises and the manufacturing plants for the creation of new and the improvement of existing models of technical equipment. There is no other organization (all-union production association, scientific research institute or ministry) which can determine better than the enterprise itself can what its needs are for specific kinds of technical equipment.

The stimulation of the introduction of new technical equipment includes two directions. First--the improvement of bonuses for the creation and application of new technical equipment with the allotment of special bonuses for new productions which are introduced into operation on the basis of technical re-equipment, reconstruction and expansion. The second direction is improvement of financial work for introducing new technical equipment.

When the workers of the enterprises have high material incentives to increase the economic effect, it is difficult for the higher agencies to control the correctness of the initial data for each measure and suggestion, the overall number of which frequently exceeds 1,000. But one can achieve reliability in accounting for the effect if the evaluation of the results and bonuses for the creation and introduction of measures for new technical equipment are carried out not for the conventional annual economic effect, which is determined in isolation from the increase in profit for the enterprise as a whole, but for the increase in the sum of actual profit (reduction of production cost) on the whole for the shops and enterprises as a result of the introduction of the new technical equipment. To do this it is necessary systematically (annually) to conduct a quantitative evaluation of the influence (proportion) of all introduced technical equipment on the economic indicators of the activity of the enterprise as a whole and above all on the increase in the sum of profit. With calculations of the increase in this for each scientific and technical measure and proposal of efficiency experts and inventors it is expedient to use data from initial accounting for the reduction of the actual expenditure of raw materials, processed materials, energy, fuel, wages and overhead (per unit of output and for all output) and compare the savings that are obtained with the increase in the sum of profit for each shop and the enterprise as a whole.

In order to accelerate assimilation and reduce losses from new productions, it is necessary to award bonuses to their collectives individually from existing shops throughout the course of the entire normative time period and only for the assimilation of the planned capacity on time or ahead of schedule. This will also create economic conditions for receiving new facilities which are fully ready for normal operation. The minimal amount of the bonus when new productions are assimilated on time should correspond to the amount of the bonuses in the existing shops that have fulfilled the plan, and when the

assimilation is ahead of schedule one should establish normatives for each percentage point of reduction of the normative time periods.

Economic stimulation of the effectiveness of new technical equipment requires restructuring of the system for financing work for its introduction. At the present time this is carried out from many sources and through the formation of several funds for these purposes. The financing is also provided directly from the profit of the enterprise, the production cost of the products, amortization for renovation, bank credit and budget allocations for capital construction.

On the basis of the capital and funds that are used, it would be expedient to create a unified fund for technical development. The main source of its formation should be the internal capital of the enterprise, namely: amortization for renovation and capital repair, earnings from the sale of surplus and unneeded equipment, and profit. And only in exceptional cases will budget allocations be used. The amount of the fund should be determined by the actual time of service of the equipment at a specific enterprise, the planned rates for its updating, and the availability of funds. It is important to concentrate all funds on technical development in the form of the fund that is in the hands of the enterprise itself. Higher economic agencies should not replace the collectives of the plants in forming and distributing the capital and funds that are used, but should exercise effective control over the overall volume of expenditures and their return, and above all for the final results of production received as a result of the introduction of the new technical equipment.

B. Rayzberg (division chief of the NIEI under the USSR Gosplan, doctor of technical sciences, professor). Acceleration of scientific and technical progress depends to a considerable degree on the influence of plans over the processes of the creation and utilization of new technical equipment and technology. In order to increase the mobilizing role of planning in accelerating the introduction of scientific and technical achievements, it is necessary to intercoordinate more completely and more deeply at all levels of the economic system the plans for scientific research, planning-design and technological developments, experimental work, the assimilation of production and the changeover to series and mass output of new technical equipment. All stages of the cycle "Science--Technical Equipment--Production--Application" should be encompassed by a unified plan or a unified program so as to avoid lengthy time gaps between scientific research work and experimental design development, between planning and experimental production, between experimental production and mass manufacture and application of the new technical equipment and technology. All-around planning will make it possible to considerably accelerate the rates of assimilation and introduction of the achievements of science and technology and will increase the results and effectiveness of the utilization of our scientific and technical potential.

To these ends we should develop programmed planning of scientific and technical progress, being oriented toward the development of scientific and technical programs for solving individual problems related to the assimilation of new technical equipment and technology as well as statewide comprehensive target programs for the introduction of large-scale achievements of science

and technology for completely encompassing all stages of the scientific and technical cycle, including in the program measures for series output of new technical equipment. Such programs should be developed in close coordination with the five-year plans.

Increasing the role of plans for the development of science and technology in the acceleration of scientific and technical progress requires certain changes in the methods and the organization of their development. The state plan for the development of science and technology should be formed not through consolidating the proposals of the ministries and departments, but on the basis of their tasks for implementing the unified scientific and technical policy and conducting large scientific and technical measures of an interbranch nature. The division of the plan entitled "The Development of Science and Technology" should be the one that is given with the formation of the entire plan, and on its basis one should carry out the planning of scientific and technical progress which pervades all sections of the national economic plans.

The development of the plan for new technical equipment should anticipate the drawing of the plans for production, and the latter should be formed on the basis of previously determined developments in the area of scientific and technical progress. The plan for the development of science and technology and the introduction of its achievements into the national economy should exert a direct influence on the structure of production, the list of products that are produced, their technical level and quality, the technological and reproduction structure of capital investments, technical re-equipment of production, and the effectiveness of the utilization of all kinds of resources.

As final results for the implementation of planned scientific and technical measures one should establish assignments for obtaining an overall economic and social national economic effect which is concretized in indicators of the increased productivity of labor, reduced proportional expenditures of raw materials, processed materials, fuel and energy, improvement of the output-capital ratio, and reduction of the proportional capital-intensiveness of production.

One of the directions for accelerating scientific and technical progress and increasing the effectiveness of expenditures on new technical equipment is to increase the role of the consumer in planning production and utilizing new technical equipment. It seems expedient for the consumers in conjunction with the producers to draw up program-orders for the creation and manufacture of the most important principally new kinds of technical equipment, which embraces the entire "life cycle" of such items--from research and development to extensive utilization. The program-orders, which are approved by the USSR State Committee for Science and Technology and Gosplan, could play the role of a preplanning document, and their measures, which are included in the five-year and annual plans for new technical equipment, will essentially strengthen the orientation of the plans toward the interests of the consumers.

It is necessary to improve the system of indicators for planning the technical level of production and the products that are produced, the system which is

used when drawing up statewide and branch plans as well as the plans for the associations and enterprises. It is necessary for these indicators to reflect the increase in productivity, reliability, operational ability and economy of the technical equipment that is planned for production and the degree to which it approaches the level of the highest world achievements in terms of the indicated parameters.

Increased independence of the enterprises and associations in implementing the technical policy and above all technical re-equipment of production and its specialization will contribute to accelerating scientific and technical progress.

Along with improvement of planning of scientific and technical progress it is necessary to deepen its influence on the introduction and effective utilization of new technical equipment and other elements of the economic mechanism. We have in mind the system of economic stimuli and levers, including price-setting for new technical equipment, wages and incentives for the creators, producers and consumers of the technical equipment, strengthening and development of the principles of cost accounting [khozraschet] in the area of scientific and technical developments, and credit priorities for work for the assimilation of new technical equipment. Along with the creation of favorable economic conditions for enterprises and associations that are actively oriented toward technical and technological progress, it is necessary to put into effect a system of proportional sanctions for those who for many years produce old technical equipment, utilize outdated technology, and produce products that do not meet the requirements of progressive standards.

V. Budavey (director of the Institute of Economic Problems of the City of Moscow). The course toward acceleration of scientific and technical progress is conditioned by the system of purposive and intercoordinated measures which reflect fuller utilization of the scientific and technical potential and increased rates of its development as well as the updating of production. Acceleration of scientific and technical progress should become a fully planned process. But its content in planning practice is still not unified and is interpreted in various ways. It seems to us that this concept can be revealed through a comparative evaluation of the current and preceding (or future) periods in terms of the following indicators: length of the cycle for the creation and realization of technical innovations in the schema "Science--New Technical Equipment--Production--Application"; frequency of technical modification of the same kinds of means of labor, qualitative improvement of their consumer value; rates of updating of the machine fleet; time periods for the creation and dissemination of principally new technical equipment; rates of rise in the level of automation of production, and so forth. The acceleration of scientific and technical progress is also shown by the degree of change in certain most important technical parameters of the machines and equipment (speed of smelting of metal, service life of the engine, pressure and so forth).

These indicators are being increasingly applied in planning. The task is to increase their determining role in planning acceleration of technical development. At the present time it is mainly the scientific and technical

reserve and the manufacture of individual models of new technical equipment that are planned, and problems of reducing the duration of the cycle for their creation and introduction and increasing the rates of replacement of obsolete machines and equipment are not reflected. Under the 11th Five-Year Plan we began, and under the 12th we shall continue to develop the establishment of planning assignments for removing outdated products from production and replacing less effective technologies. Apparently this important change in the planning of science and technology should be augmented by the introduction of normative indicators for replacing obsolete technical equipment and updating the fleet of machines and equipment. Thus indicators and normative periods for updating products will be combined with the assignments for accelerating the rates of replacement of the outdated stock of technical means.

Such a comprehensive approach presupposes an organic interconnection between the plans for the development of science and technology and the updating of production. In the final analysis it is precisely in the plans for reconstruction and technical re-equipment, and also for new construction of enterprises which determine the technical image of modern production that scientific and technical potential is realized and, to a considerable degree, a kind of social order is formed with respect to quality, time periods for the creation, and the scope of production of the new technical equipment. Only by coordinating the aforementioned plans can one create a reliable basis for coordinating the interests of the producers and consumers of new technical equipment and establishing direct long-term economic ties and contractual relations not only among individual associations and enterprises, but also at the level of the ministries and departments. The question of concluding agreements at the branch level has long been crucial, especially with respect to the development and implementation of large scientific and technical programs which, as a rule, are of an interbranch nature.

The interconnection between planning assignments for the creation, production, distribution and application of new technical equipment will make it possible to reduce losses of time when changing over from one stage of the cycle to another and to promptly take into account the new needs of production and the factor of obsolescence of technical equipment, beginning with work for its planning, as well as to orient all measures toward the achievement of the final national economic results within the earmarked time periods.

Planned control of the scientific and technical cycle as a unified whole on the scale of the branch and the national economy will also help to solve another important problem--to determine more accurately the need for new technical equipment resources. The demand for new items is now being studied inadequately. It is no wonder, for example, that in the area of the production of consumer goods one frequently encounters both excess output (electric razors, refrigerators, washing machines and so forth) and incomplete satisfaction of the needs of the population with respect to the quality of the items.

Acceleration of scientific and technical progress is also mediated by more complete orientation of scientific and technical innovations toward the final national economic results and toward tasks of intensification of production.

This problem cannot be solved through gradual improvement of individual indicators of the effectiveness of scientific and technical measures alone. We are speaking about the development of a system of planning indicators and evaluations of the economic effect and the effectiveness of scientific and technical progress as well as their increased role in the development and implementation of plans. It is necessary to strengthen the directive (compulsory) nature of planning assignments for reducing the labor-intensiveness of products and economizing on raw and processed materials, fuel and energy and other resources (in absolute and relative terms) as a result of conducting scientific and technical measures. Progress is already being made in planning in this area. The time has come to solve the problem of essentially changing the principal system, the overall logic and the technology of the development of the plan in this area. Indicators of the economic effect and savings on resources should become completely target assignments of planning projections for scientific and technical development. Technical innovations and new technologies should be selected and planned in such a way as to provide for obtaining the given socioeconomic result. Herein, in particular, lies the entire meaning of the orientation of the unified scientific and technical policy toward tasks of intensifying public production.

B. Zaytsev (professor at the Academy of the National Economy under the USSR Council of Ministers). The plan for production and associations and enterprises for introducing new technical equipment includes directive assignments of the state plan, the plan of the branch and initiative assignments for production collectives. The first two parts are insignificant in terms of the overall quantity of measures (they comprise an average of no more than 10-15 percent), but they reflect the main tasks for realizing the unified state scientific and technical policy. From the national economic viewpoint they are the most promising and effective and they determine the basic rates of scientific and technical progress.

On the other hand, assignments of the state and branch plans are objects of control, and under the conditions of the large-scale economic experiment, the material incentives for management personnel of the enterprises and associations for the overall economic results depend directly on their fulfillment. But we have not yet solved the problem of motivating the production collectives to include assignments from higher agencies in the plans for the introduction of new technical equipment. Losses of bonuses from failure to fulfill these are not commensurable with the volumes of incentives for the utilization of innovations.

In order to increase the role of the plan in accelerating the rates of scientific and technical progress it seems expedient, as is required by the decisions of the 26th CPSU Congress, to increase the centralization of planning. To do this it is necessary in the plans for associations and enterprises to increase the proportion of measures for the introduction of new technical equipment that are formed on the basis of directive assignments. The national economic results from the utilization of innovations should be the basis for the stimulation of production collectives.

The plan for new technical equipment at any level of management of the national economy is a list of individual measures for the utilization of the results for scientific research and development which, in the majority of cases, is not coordinated with the plan for production or other sections. This is one of the main reasons for the failure to carry out assignments for the introduction of innovations, and it also leads to incomplete reflection of their effectiveness in the indicators for the development of production. This is especially appreciable at the level of production associations and enterprises.

One can provide for organic unity of the plan for new technical equipment and other sections on the basis of improvement of the process of the development of technical and industrial financial plans of the primary units of production. Under the conditions of the evaluation of the activity of associations in terms of the fulfillment of deliveries in keeping with agreements, this process should begin with the formation of measures for the utilization of innovations. In the next stage in the corresponding sections of the plan one should, on the one hand, envision all the necessary resources for the introduction of new technical equipment (labor, material and financial) and the volumes of construction and installation work, and, on the other, one should reflect all the results from the utilization of the innovations, including the volumes of production, the savings on material and labor resources, the reduction of the production cost and the increased profit. If the measure is not backed up by resources it should not be included in the plan.

It would be expedient to use the same principles for coordinating the plans at other levels of management.

The selection of measures for the creation and introduction of new technical equipment at all levels of management of the national economy should be carried out on the basis of the national economic effect as calculated according to the existing methods and instructions. The amount of this effect should also be taken into account when determining the amounts of incentives.

For scientific research and planning and design organizations the deductions into the incentive funds should be made depending on the increase in profit and the reduction of production costs achieved from the utilization of the results of their work. But it is important to pay bonuses to the creators of new technical equipment immediately after the completion of research and development from the funds formed from work that has already been introduced. At the present time material incentives are not effective enough, since the remuneration is paid for results that were achieved a long time ago. An average of 3-4 years pass from the time of completion of research and development until the bonuses are paid.

In order to increase the motivation of production collectives to increase the final national economic results, it seems expedient to abolish all existing systems of bonuses for achieving individual indicators, including the introduction of new technical equipment. The associations and enterprises should have one material incentive fund which is formed depending on the overall results of production and economic activity. From this one should

provide incentives for workers for proposing and participating in individual measures which are directed toward increasing these results. The amount of the bonuses should be determined taking into account the national economic effectiveness of the measures and their actual participation in their implementation.

V. Pushnyak (chief of the planning and economics administration of the Ministry of Instrument Making, Automation Equipment and Control Systems, candidate of technical sciences). The role of the plan in accelerating scientific and technical progress becomes more of a mobilizing one when the planning assignments more fully stimulate the reduction of expenditures of resources on satisfying public needs. Now the main indicators of planning (commercial output, sales, normative net output) reflect to a greater degree the volumes of expended public resources (material and labor) on the production of products, and to a much lesser degree--the volumes of consumer values obtained, and they practically do not reflect the level of consumer qualities of the items. The content of the indicators is conditioned by the mechanism of price setting, which is based on the principle of the formation of prices according to expenditures made by the manufacturer. Because of this the planning, evaluation and incentive indicators in their very basis do not provide incentives for new technical equipment. Any progressive technical equipment is directed toward the reduction of expenditures of resources and leads to a reduction of the cost, and this means also the volumes of production calculated in value terms.

This is one of the contradictions between the content of planning indicators and the normative net output. In order to eliminate it it is necessary to change the principle of price setting. The price should be a measure of the consumer value, that is, it should be determined by the ratio between the main consumer qualities of the new and old commodity and the cost of the latter. Here it is necessary to take into account the constant reduction of the cost of satisfying the public needs.

This kind of price setting will make it possible to form the price in keeping with the socially necessary expenditures of labor for each consumer cost and to delimit the cost of production for the manufacturer and the socially necessary cost of production that is allowed by society under the given conditions of development. In order to establish prices correctly for all kinds (groups) of products it would be expedient to establish normative documents for evaluating the main parameters of the items. This restructuring is complicated but it will provide for a combination of the economic interests and the results of the introduction of new technical equipment.

The second contradiction between scientific and technical progress and economic indicators consists in that in planning and evaluation indicators one calculates all the results that are achieved on the basis of the permanent prices and normatives that are set for a long period and which do not reflect the dynamics of their actual change in time. This leads to a situation in which the achievements in the report or planning period are measured by measures of the past period (the conditions and the time when the prices and normatives were set). In order to stimulate scientific and technical progress it is important to establish not permanent evaluating and planning indicators,

but ones which change in keeping with the need for releasing resources for more complete satisfaction of the demand. It would also be expedient to establish prices which are graduated in time according to the relationship of consumer qualities of the items. Thus one would stimulate precisely the progressive products and a reduction of expenditures on their production. This, essentially, is a mechanism for establishing a correspondence between socially necessary expenditures of labor on the production of items and the level of consumer qualities of the latter.

The organic coordination of the production plan and new technical equipment depends on a correct selection of goals and orientation toward them of indicators of planning and incentives for ensuring the implementation of the assignments. The main social goal of the plan--a higher level of satisfaction of the needs of the society--should be reflected again in the indicators of planning and stimulation. For example, the task of machine building is to provide for maximum savings on public resources in all branches of the national economy as a result of the utilization of highly productive and reliable machines with a minimum cost of producing them. With the existing price setting the realization of this goal is made more difficult because of the following factors. First, the reduction of the cost of the machines leads to a reduction of production volumes, toward which all plans and stimuli for the manufacturers of the technical equipment are oriented. Second, a considerable increase in productivity and reliability of the machines requires additional expenditures on the part of the enterprise, and these factors are not properly reflected when the prices are set.

Consequently, it is necessary to coordinate the goals and indicators of the plan with the tasks of scientific and technical progress. As a result, each enterprise will strive to improve its own economic indicators mainly through progressive new technical equipment.

Experience shows that updating the products is done every 7-10 years, and in the most progressive branches of the economy--every 5 years. In order to increase labor productivity in the national economy as a whole by 5 percent annually, it is necessary for the new machines with a time period for renewal of 10 years to be delivered to production only if the productivity is increased no less than 1.6-fold and the cost is reduced by no less than 40 percent. Otherwise the rates of public production are retarded.

At the present time developers frequently suggest new technical equipment with an economically unjustified degree of increase in consumer qualities. There are no normative documents that limit such relationships. But they should be established and they should protect the economy from producing ineffective items. This would produce no small economic effect and would orient all units of the national economy toward the development of progressive technical equipment. Naturally, here there should be no single standard for all kinds of products.

It is important to stimulate the introduction of new technical equipment for its effectiveness (increased consumer qualities and reduced resource-intensiveness). The manufacturer should receive a higher price for better

items (and, consequently, more profit), and the developer should receive more deductions into the bonus fund from the profit of the enterprises.

Progress is now being made in price setting for new technical equipment. Three levels of prices have been established, depending on the consumer characteristics of the products in time: the price with the increment, without the increment and with the rebate. But the existing mechanism for price setting works poorly since the proportion of increments and rebates is very low and the limits between these prices are unclear and frequently subjective.

And so it is necessary to overcome the existing contradiction between the economic indicators of planning and scientific and technical progress (particularly evaluating the volumes of production and reducing production costs) through changing the price-setting mechanism.

R. Sokolov (division chief of the All-Union Scientific Research Institute of Problems of Organization and Management under the State Committee for Science and Technology, candidate of technical sciences). A mobilizing role in accelerating scientific and technical progress will be provided only by a plan in which the solutions to the main socioeconomic problems are organically coordinated with the possibilities of science and technology and concrete assignments for raising the technical and economic level of the branches on the basis of technical re-equipment, reconstruction and the construction of new enterprises. It seems that a necessary condition for this will be further development of target-program management of scientific and technical progress.

The question of strengthening the target orientation and the substantiation of the plans remains a central one as before. What comes to the foreground are the formation of a system of target assignments and the establishment of ties between various indicators, including the technical and economic level of the branches, production facilities, technological processes and products. Immediately associated with this is the task of measuring such indicators and utilizing them in planning.

It is important for scientific and technical programs to be "built in" to the plan. From the methodological standpoint the creation of an effective mechanism for controlling an economy that is mainly of the intensive type requires an organic combination of volume indicators of the controlled processes and qualitative indicators (which characterize the quality of new items, their consumer properties and their technical and economic level) with the latter playing a dominant role.

Restructuring the planning of scientific and technical progress, on the one hand, should preserve the entire arsenal of means that does not contradict the methodology for managing modern production and, on the other hand, it should lead to the creation of a new mechanism which corresponds more fully to the level of development of productive forces. It is important for long-range planning and the development of scientific and technical programs to combine the activity of scientific research, experimental design and planning-technological organizations with the activity of planning services of the management staff. This, along with a stronger goal orientation for the plan,

will help to increase its scientific substantiation and, consequently, its mobilizing role as well.

It seems that it would be expedient to solve the problem of creating special research or planning organizations whose functions would include the preparation of drafts of plans and the substantiation of a strategy for scientific and technical development. They can also perform the scientific-methodological and coordinating role when developing the plans of the ministries and departments.

The main thing in solving the problem of the connection between the plans for new technical equipment and the plans for production is prompt formation and coordination of the programs for introduction (assimilation) of innovations. This should take place under a planned policy and be envisioned as an individual kind of work in the stages of technical and working planning in keeping with the assignments of the scientific and technical programs. An attempt was made to solve this problem in the methodological instructions of the USSR Gosplan for the 10th Five-Year Plan and the temporary guidelines for the formation of programs for introduction which were distributed to the ministries in 1976. But subsequently this activity was prematurely halted and was replaced without sufficient substantiation by work on comprehensive target scientific and technical programs.

The selection of new technical equipment is regarded as one of the most important means of controlling scientific and technical progress. It should be based on a combination of at least two interests: those of the national economy and those of the specific consumer. This, in our opinion, cannot be achieved within the framework of purely economic evaluations. It is necessary to develop a functional aspect of control with special-purpose orientation, an intercoordinated system of indicators and the introduction of the corresponding methodological and informational support.

G. Galakhov (subdivision chief of the USSR Gosplan, candidate of economic sciences). The mobilizing role of the plan ensues from its functions which are named depending on what kind they are--long-term, five-year or annual plans--and the level of planning--national economy, branch, enterprise (association). The cycle "Science--Technical Equipment--Production--Introduction" should be regarded in the interconnection of three levels of planning, taking into account their functions and their degree of independence. Moreover, this cycle has many units. In order to reduce the time period for introduction it is necessary to carry out preplanning interbranch and functional preparations so that by the beginning of the formation of the plan they will have worked through the questions of engineering support, the technical readiness of the associated branches, the economic expediency and the organizational forms of introduction, and they will also determine the direct performers of the work. The time periods for drawing up the plan, its reliability and the possibility of a substantiated selection of technological means depend largely on this.

On the basis of tasks for socioeconomic development, the long-term plan formulates the long-range scientific and technical policy. The structural policy, rates and proportions determined in it condition the necessary level

of increase in the existing technical potential and the corresponding technical and economic indicators of future funds. Thus the economic potential of the new technical equipment and technology is predetermined. And this means that the long-range plan basically already forms their major indicator--the effectiveness and, by expanding the horizon of planning, it narrows the amount of discontinuation. The plan requires real savings within specific time periods.

In the five-year plan the main directions for scientific and technical progress are detailed in the form of specific technologies, technical equipment, materials and items. The number of limitations for selection is increasing. These include proportions, the necessary level of effectiveness of public production taken from the long-range plan, maximum volumes of resources for the development of the branch, completely specific assignments of the social program, and so forth. The selection of technical equipment and technology is becoming increasingly specific in nature. Great requirements are being set for economizing on time and resources since their quantities are more rigidly determined. Economic maneuvering of resources is limited also by interbranch ties. They are concentrated for solving key problems. The connection between resources and the existing potential is more sensitive. In the five-year plan concretization of problems of controlling scientific and technical progress requires addressing specific workers and this means solving the problem of combining centralized and decentralized management. Its large-scale problems with the participation of the group of branches requires centralized management, in order to update the existing potential it is necessary to have a certain amount of independence on the part of the enterprises and associations as well as noncentralized resources. But at this level too the tasks that are carried out on the scientific and technical basis are largely conditioned by the long-term plan. This is clear from the drawing up of plans for the technical rearmament of enterprises.

Specialization at an enterprise which limits the selection of technologies takes into account the fundamental materials of the system for the development of the branch. The selection of the base model of the product or the technological means is based on the technical policy for the development of the branch over the long-term period. The basis of these plans which are prepared by the leading enterprises is the unified technical and economic substantiation of the conflicts of measures. This requires carrying out engineering calculations for the necessary rise in the technical level of the enterprise, and measures are earmarked for providing for balance of all the main sections, productions, and auxiliary services and sections, and also equalization of the conditions for labor and improvement of the social development of the collective. Such plans should be developed for the 12th Five-Year Plan even as early as the second quarter of 1985.

The directive and organizing role of the upper level of planning is manifested in various forms--from control figures for the leading resources and assignments for the production and assimilation of new technical equipment and technology to the utilization of the system of normatives, price setting and other economic levers of influence.

Today, in our opinion, the problem consists precisely in locating the efficient forms of combining centralization with independence and initiative of the enterprises in utilizing the achievements of scientific and technical progress. In order to solve this problem it is necessary to change over from a determination of the economic effectiveness of scientific and technical progress in the preplanning and final stage to interbranch preparation of well-thought-out and technically prepared and scientific and technical measures in keeping with the indicators of the effectiveness of public production which are established by the five-year plan and the national economic requirements of the long-term plan which reflect the tasks of socioeconomic development.

The relative limitedness of resources is generally known. Only in the plan is possible to resolve the problem of their balance and distribution in time, branches and performers of work. The criterion for selecting one or another kind of technical equipment or technology is the measure of their influence on the change in such planning indicators as labor-intensiveness, material-intensiveness, the volume of capital investments per unit of increase in output, and the time period for recouping these investments as compared to the planning indicators.

Thus the problem of selection amounts to obtaining the guaranteed effect with minimum expenditures in reduced time periods and, consequently, to reliable insurance of the planned effectiveness. In connection with this the task of controlling the effectiveness of scientific and technical progress becomes primary and requires the implementation of a number of organizational and technical measures. Their implementation should begin first and foremost with an accounting for the savings on resources brought about by the introduction of the new technical equipment and technology at the enterprises.

Today we do not have complete information about the economic effect of new technical equipment. Thus according to the data of the statistical annual, "The USSR National Economy in 1983," expenditures on the introduction of measures for new technical equipment into industry in 1983 amounted to 11.3 billion rubles, including expenditures of past years, and capital investments in industry during that year--53.7 billion rubles. The most approximate calculations show that only 25-30 percent of the effect brought about by capital investments comes within the purview of statistics.

So far there is no unity in the methodology for calculating effectiveness. From our point of view there is no justification for the existence of two sets of methods: the standard methods for the effectiveness of capital investments and the methods for determining the effectiveness of new technical equipment. Since the basic principle for allotting capital expenditures is priority support for measures that are on a highly effective technical basis, it is necessary also to have methodological unity when determining the effectiveness of new technical equipment and capital investments.

The ministries and departments are still unable to establish clearly enough the effectiveness of expenditures on technical re-equipment and reconstruction. And it is not a matter of methods, but of the lack of elementary accounting for products obtained at an enterprise that is in

operation without additional capital investments and as a result of the introduction of new technical equipment. The semiannual form for reporting on technical re-equipment has been introduced by only a couple of ministries.

The gross method of accounting for effectiveness does not provide an idea of the actual effectiveness of existing production. It is necessary to take into account the effect that is achieved on the basis of noninvestment factors, that is, as a result of previously introduced new technical equipment without additional resources. This will make it possible to determine in the plan the amount of difficulty of the utilization of the production potential.

In order to improve the control of the effectiveness of scientific and technical progress (especially in machine building) it would be expedient to plan the growth of the productivity of machines and equipment as well as their cost. When drawing up each kind of plan it is important to know the relationship between the growth of productivity and the cost of the machines that are being introduced.

In order to evaluate the utilization of technical equipment that is introduced one might suggest as a generalizing indicator of effectiveness the machine-output ratio. With an increase in the proportion of equipment in the capital investments, a reduction of manual labor and its replacement with machines, it is the machine-output ratio that becomes the necessary additional indicator which reflects the increase of labor productivity of automated and mechanized productions. The utilization of this indicator as a fund-forming indicator for noncentralized capital investments would more expediently stimulate their formation, depending on the intensification of production.

In stimulating the introduction of the achievements of scientific and technical progress the main thing is to obtain a guaranteed effect which is based in the plan. Both preplanning preparation of scientific and technical measures and all-round planning of scientific and technical progress in all sections of the plan should be directed toward this.

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